Lack of IT in hospitals endangers patients' lives. PAGE 8
Opinion: Tracking assets needn't be a chore. PAGE 28

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SENATE MEASURE EMBRACES OPT-IN

Class-action suits on privacy a possibility

BY PATRICK THIBODEAU
WASHINGTON

A new push is on in Congress for online privacy rules that could raise legal risks for businesses and impose new technical requirements on them.

The chairman of the Senate Commerce Committee, Ernest "Fritz" Hollings (D-S.C.), last week introduced his long-awaited privacy bill, which would set national privacy standards for all online transactions. It includes an "opt-in" provision, meaning sensitive personal data couldn't be collected unless the consumer has given explicit permission.

The bill would also preempt the ability of states to pass their own online privacy rules,

Senate, page 65

GLASS HOUSE FACES ROCKY ISSUES

Servers' encroachment still tough to manage

BY CRAIG STEDMAN
LAS VEGAS

As far back as the mid-1990s, companies began bucking the IT decentralization trend by moving Unix and Windows servers into their data centers. But many data center managers are still struggling to coordinate systems management processes between their mainframes and the newer servers.

The big roadblock is getting business managers and various IT groups to agree that common mainframelike systems operation procedures are needed in areas such as software change management and the scheduling of batch processing

Servers, page 16

ONLINE: More stories of interest to mainframers are on our Server/Mainframe Special Coverage page: **www.computerworld.com/q?a1900**

Skills shortage 5 years out; firms unprepared

BY JULIA KING

Attention unemployed mainframe programmers and operators: Prospects are dim for landing a mainframe IT job in the immediate future.

But experts predicted last week that by about 2007, when aging IT staffers are expected to begin retiring in large numbers, companies will be clamoring for your skills, especially if they include mainframe systems support experience and knowledge.

In other words, the much-touted mainframe skills shortage is still about five years off.

"It's really more of a futuristic thing and not a

Shortage, page 16

IBM CLAIM TO ebXML PATENT SPARKS FUROR

Critics see hold on trading partner portion of the spec as big blow to open standards

BY MICHAEL MEEHAN

E-CONTROVERSY

A patent claim by IBM covering a submission it made to the electronic-business XML standards body created a furor last week over the notion of open standards and the ability of vendors to curb their proprietary tendencies.

Last month, IBM notified the Organization for the Advancement of Structured Information Standards that it holds a patent for the trading partner agreement portion of the ebXML e-commerce trading specifications.

Bob Sutor, director of e-business standards strategy at IBM, was chairman of the Billerica, Mass.-based OASIS board when IBM submitted the Trading Partner Agreement Markup Language to be part of what OASIS has called "an open XML-based infrastructure that will enable business information to be exchanged consistently on a global basis."

Although IBM said it wouldn't charge for use of the technology, many viewed its claim to the patent as a complete sellout of ebXML's original open-standards promise.

ebXML Patent, page 65

Tending Profitable Projects

The tough economy is forcing project managers such as PacifiCorp's Jann Davis (below) to take a back-to-basics, cost-focused approach to keep projects in the black. Find out about methodologies, tools and out-of-the-box thinking that can help you succeed.

PROJECT MANAGEMENT

Stories begin on page 36.

ROBBIE McLARAN

NEWSPAPER

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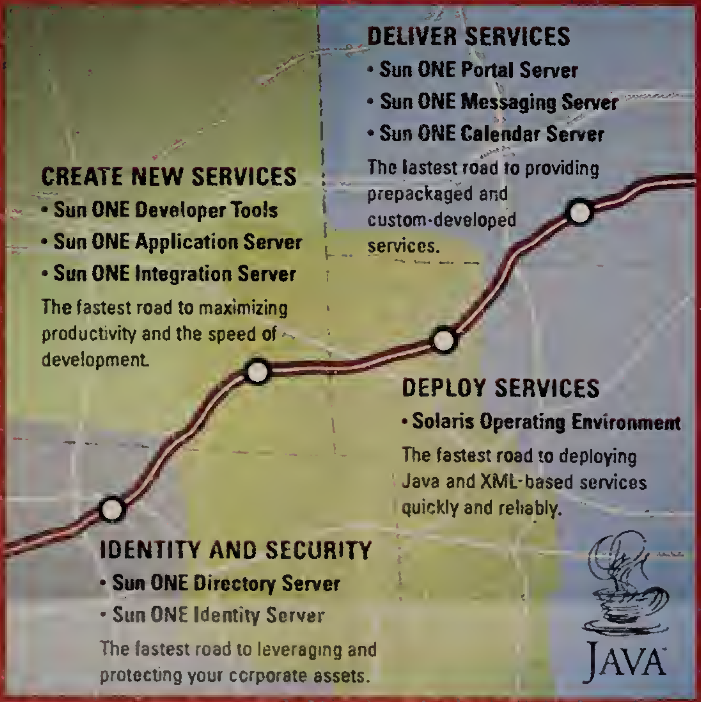

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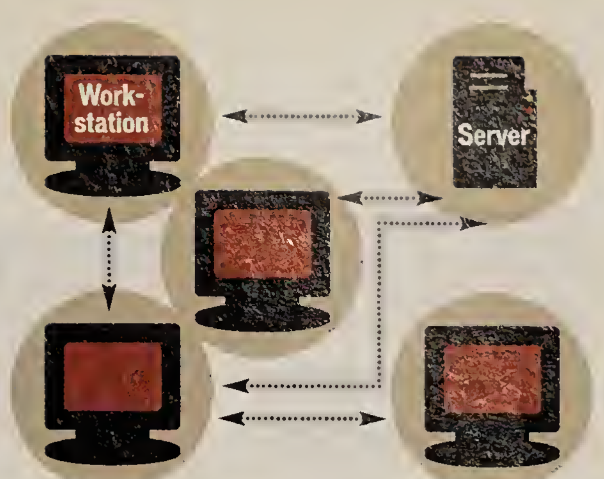
WEARABLE COMPUTERS

These advanced computing devices could establish a new fabric for mobile computing, but continuous connectivity could blur personal and work time. **PAGE 54**

WEBB CHAPPELL 2001

HARNESSING GRID IRON

Grid computing uses distributed computing techniques to capture unused processing cycles on networked servers and PCs. The technology can pay big dividends — when used with the right applications. **PAGE 48**



APRIL 22, 2002

COMPUTERWORLD THIS WEEK

NEWS 6

6 Two economists give diametrically opposed testimony in the Microsoft antitrust case.

6 Analysts warn that Walter Hewlett's lawsuit targeting the HP/Compaq merger could disrupt the integration of the companies.

7 A Microsoft executive says the Windows .Net Server operating system, which is already late, won't ship until sometime next year.

8 Companies that use driver's licenses to authenticate customers may have to upgrade their technology if Congress approves new legislation.

12 The U.S. Army is implementing software to help analyze security holes and install patches on more than 1.5 million PCs.

Quick Link For breaking news, updated twice daily, visit *Computerworld.com*:
www.computerworld.com/q?q4000

BUSINESS 33

33 David Foote writes that you must act now if you're looking to rebuild your IT organization after recession-induced layoffs.

36 Strict adherence to deadlines and avoidance of cost overruns are back in vogue as project management slants toward the bottom line.

40 National City CIO Jim Hughes challenged his 1,200-person IT staff to cut project duration in half. Hey, a 45% reduction ain't bad.

42 Hiring a project management SWAT team can deliver big benefits, so long as the team's mission is well communicated to staffers who might be resentful of the outside help.

44 Workstyles: Some of the IT staffers at Federal Home Loan Mortgage have enough business savvy to help with the company's mortgage trading business.

TECHNOLOGY 47

47 Nicholas Petreley writes an open letter to Scott McNealy, saying Sun must redouble its competitive efforts against Windows.

52 Automating storage resource management tasks makes sense as SANs become more common. Policy-based tools can help with alerts; broader capabilities are evolving.

55 QuickStudy: From zinc air to lithium-ion cells, new battery technologies aim to keep mobile computing users online longer.

56 Emerging Technologies: InfiniBand's I/O technology is faster and more scalable than the PCI bus standard. It will turn today's server designs inside out — and break them into separately scalable subsystems.

60 Security Journal: Who deep-sixed the SQL database? In the frenzy to recover the system, Vince Tuesday finds that administrators may have erased the key evidence.

OPINIONS 28

28 Maryfran Johnson thinks it's time IT managers built up their business credibility by measuring the ROI of IT projects in ways their CFOs can appreciate.

28 Pimm Fox says asset-tracking software can help you in three key areas if you're looking to rein in IT costs. It's especially useful for negotiating deals and deciding which equipment to keep.

29 Michael Gartenberg has some advice for IT managers thinking about buying PCs: Push vendors for more — a *lot* more — than what the industry has offered to date.

66 Frank Hayes says the word *how* is becoming increasingly important today in explaining the benefits of an IT project. So make sure your audience knows "how."

Editorial/Letters 28, 29
How to Contact CW 64
Company Index 64
Shark Tank 66

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ONLINE

INFINIBAND

After reading the report on page 56 spotlighting InfiniBand, visit our Web site for a glossary of terms and links to more resources.
www.computerworld.com/q?28405

CRIMINAL INSECURITY?

The National Academy of Sciences wants Congress to make it easier to punish companies that produce nonsecure software that puts businesses and consumers at risk, according to a recent report. And there's no shortage of opinions on this issue. Want to register yours?
www.computerworld.com/q?a1890

WRONG TURN ON DIGITAL RIGHTS?

The digital rights management software that Microsoft Corp. ships with new multimedia programs could allow the software maker unprecedented control over content, says guest columnist Curtis Karnow.
www.computerworld.com/community/os

FREE SOFTWARE, U.S.-STYLE

Is there liberty and justice for all in free software? Not to mention great wealth for some? Log in for a spirited discussion.
www.computerworld.com/q?a1880

AT DEADLINE

Gates to Take Stand In Remedy Hearing

Microsoft Corp. said that Bill Gates, its chairman and chief software architect, is expected to testify today in the antitrust remedy proceedings that are taking place in U.S. District Court in Washington (see related story, right). Gates will claim that restrictions proposed by the group of nonsettling states would imperil Microsoft and harm the entire PC industry, the company said.

Lucent Fills CIO Job After Nine Months

Murray Hill, N.J.-based Lucent Technologies Inc. named Ruth Bruch its CIO, effective May 15, and said she will initially focus on completing a re-engineering of the company's systems and on the installation of SAP AG business applications. The CIO post has been vacant since July. Bruch, 48, previously was CIO at Visteon Corp., a Dearborn, Mich.-based supplier of automotive parts.

CA to Give Users Web Data Access

Computer Associates International Inc. said it plans to announce an online customer information service at its CA World 2002 conference in Orlando this week. Users of Customer Connect will be able to access account data and request technical support help via the Web, Islandia, N.Y.-based CA said. All customers with support contracts will be able to use the service.

Short Takes

The **U.S. POSTAL SERVICE** confirmed that a systems glitch shut down its package tracking system last Monday and said it hoped to resolve the problem over the weekend. . . . Due to user feedback, **SUN MICROSYSTEMS INC.** said it's rethinking a decision to end support for Intel-based servers in its upcoming Solaris 9 operating system.

Remedy Phase Focuses On Witness Credibility

Antitrust judge starts hearing Microsoft's side

BY PATRICK THIBODEAU
WASHINGTON

UNLIKE HER predecessor in the Microsoft Corp. antitrust case, Judge Colleen Kollar-Kotelly isn't showing her cards.

Where trial Judge Thomas Penfield Jackson's face varied from utter boredom to beet red with anger during testimony, Kollar-Kotelly's expressions range from thoughtful and attentive to a polite, inscrutable smile, with only rare signs of frustration over an attorney's line of questioning.

Kollar-Kotelly is judge and jury during this remedy phase, ultimately determining who is telling the truth. That must have been difficult for her at times last week.

Kollar-Kotelly heard from two distinguished economists: Carl Shapiro, a professor of business strategy at the University of California, Berkeley, who was called by the states, and Microsoft witness Kevin Murphy, an economics professor at The University of Chicago Graduate School of Business. The two men have diametrically opposed views on the case.

Attorneys on both sides attempted to chip away at the witnesses' credibility, but whether or not they made any ground boils down to what Kollar-Kotelly thinks.

She isn't an economist. Her strength is probably "sensing who is telling the truth and who is not telling the truth. That is what judges are really good at," said Bob Lande, a law professor at the University of Baltimore School of Law.

Microsoft began presenting its case last week after four weeks of testimony from 15 witnesses for the states, giving the states their chance to begin attacking the credibility of Microsoft's witnesses.

In the case of Murphy, the states were able to point out that his consulting firm has been doing work for Microsoft for the past four or five years and that most of his work on software markets was funded by the company. But otherwise, states' attorney Steven Kuney seemed to have trouble shaking Murphy's argument for a less restrictive set of remedies.

One Microsoft witness, Scott Borduin, vice president and chief technology officer at Autodesk Inc., testified on the value of the Windows platform as a standard. But in cross-examination, Borduin acknowledged that he was troubled to learn of Microsoft's plans to omit the Java Virtual Machine from Windows XP — therefore dropping support for Java — since some of his software company's products depend on Java's presence in the operating system.

In an e-mail introduced as evidence by the states, Borduin summed up San Rafael, Calif.-based Autodesk's frustration with a quote from an engineer at his firm: "Our wholehearted support of Microsoft is grossly misplaced. This is a company that will screw anybody at the drop of a hat." ◗

Cara Garretson of the IDG News Service contributed to this story.

AT A GLANCE

Halfway Point

Microsoft began presenting its case last week.

WITNESSES: Microsoft could present up to 30 witnesses, vs. 15 for the states, but many will be on the stand for only a few hours.

TIME FRAME: Each side gets 100 hours to make its case. The hearing is expected to continue well into next month.

THE JUDGE: Judge Colleen Kollar-Kotelly must still decide whether to accept the settlement reached by the U.S. Justice Department and nine of the 18 states that filed suit against Microsoft, as well as determine whether the nonsettling states have made a case for tougher remedies.

Quick Link For more on this case, visit our Microsoft antitrust Special Focus page:
www.computerworld.com/q?s1100

Despite Favorable Vote Tally, HP/Compaq Hurdles Remain

Firms face complex integration process

BY JAIKUMAR VIJAYAN

Walter Hewlett's determination to legally contest Hewlett-Packard Co.'s merger with Compaq Computer Corp. despite an initial vote tally favoring the union needlessly complicates an already complicated situation, analysts said.

HP last week announced that shareholders had approved the merger by a margin of about 45 million shares out of 1.6 billion. The company cited preliminary voting results tabulated by Newark, Del.-based independent vote-counting firm IVS Associates Inc.

The Tally

Out of 1.63 billion shares:

Votes FOR the merger:
837.9M

Votes AGAINST the merger:
792.6M

SOURCE: IVS ASSOCIATES INC., NEWARK, DEL.

In releasing the results, embattled HP CEO Carly Fiorina reiterated her plans to go ahead with the merger without delay. "We are eager to put this difficult period behind us and look forward to doing business as the new HP," Fiorina said.

But Hewlett, who filed suit against HP in March alleging that the company had coerced Frankfurt-based Deutsche Bank AG to switch 17 million votes in favor of the merger, insisted he would continue with the litigation. "These are preliminary results, and both sides will have the opportunity to examine and challenge the proxy tabulation prior to final certification," he said in a statement.

But even if Hewlett were able to convince the Delaware Chancery Court of discarding the contested votes, HP would still have enough of a margin to approve the merger, said Charles King, an analyst at Sageza Group Inc. in Mountain View, Calif. "To understand what he is up to now would [require] a Ouija board," King said.

By continuing to challenge the merger, Hewlett is only disrupting the integration process, King said. "This is a tough merger under any circumstances. But if [HP's management] is subject to constant legal threats, it's only going to get tougher," he said.

"This has gone on for far too long" and could soon start hurting both HP and Compaq in the market, warned Richard Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

So far, "HP hasn't lost a lot, because the economy has been slow and there hasn't been a lot of [purchasing]," Partridge said. But that could change as the market recovers, he said. "They have to execute on their promise of hitting the ramp running," he said. ◗

Quick Link For ongoing coverage of the HP/Compaq merger, visit our Web site:
www.computerworld.com/q?a1650

Microsoft Exec: Windows Timeline Could Slip

Allchin says he expects .Net Server next year, follow-on release 'beyond 2003'

BY CAROL SLIWA

Microsoft Corp. last week said that the upcoming Windows .Net Server operating system probably won't reach customers' hands until next year and that its successor will appear "beyond 2003."

Those predictions, made by Microsoft Group Vice President Jim Allchin at the Windows Hardware Engineering Conference in Seattle last week, suggest that future Windows releases may ship later than the company anticipated.

Microsoft officials last fall said the planned successor to Windows .Net Server and Windows XP — code-named Longhorn — would ship in 2003. But some analysts last week predicted that the server versions of Longhorn won't ship until 2005.

Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., said that he modified his forecasted shipment dates for Longhorn after learning that the operating system had shifted from a minor to a major release. He said he expects the Longhorn desktop operating system to emerge in the second half of 2004, with the server versions making their debut in mid-2005.

"Some [corporate users] were thinking they were going to wait for Longhorn because it was a minor release, and 2003 seemed like it was relatively close," Enderle said. "Now it's slipped to 2004, and that's a long time to wait."

Gartner Inc. in Stamford, Conn., has given the Longhorn server operating system a 40% chance of shipping in 2004 and a 60% likelihood for 2005, analyst Tom Bittman said.

Bittman said he also found it telling that Allchin said Windows .Net Server probably won't reach customers' hands until 2003. He said he had expected the server operating system to be released to manufacturing (RTM) this September or October, meaning it could reach customers by year's end.

Instead, Allchin's predictions suggest the RTM date could be later than Bittman expected — a big slip in his view, Bittman said.

A Continuing Trend

Further slippage certainly wouldn't be unprecedented for the new Windows server operating system, which was originally slated to ship at the same time as the Windows XP desktop software. Windows XP shipped last October, but the server operating system's ship date slid to the first half of this year and later to the second half of the year.

One reason Microsoft has cited for the delays is the security review it's undertaking as part of its Trustworthy Computing initiative. The company last week declined to comment on other reasons for the slippage, but some analysts said Microsoft has faced challenges building its .Net framework into the operating system.

Corporate users who were waiting for Windows .Net Server to take advantage of its Active Directory improvements may not want to wait. Bittman said that even if the product ships in early 2003, users should wait four or five months for the new features to stabilize.

Jeff Ratner, assistant vice president of IT infrastructure at Phoenix Home Life Mutual Insurance Co. in Enfield, Conn., said his firm planned a move to Active Directory more than a year ago and has no intention of changing its decision to go with the Windows 2000 server operating system. Ratner added that the company decided to upgrade to Windows XP desktops, knowing that Longhorn would be delayed. "We can stay on this for five or six years without having to move off," he said.

Jon Dell'Antonia, vice president of IT at OshKosh B'Gosh Inc. in Oshkosh, Wis., said his company is using Windows 2000 for new servers and also has Windows 2000 on the desktop. He said the Microsoft delays "will probably just make that a better decision."

Dell'Antonia added that longer product life cycles tend to help OshKosh B'Gosh, because "it takes a while to roll out any new operating system."

Wayne Richards, a senior technical support analyst at Goodyear Tire & Rubber Co. in Akron, Ohio, said that none of the schedule changes will affect his company, because the downturn in the economy has slowed Goodyear's upgrade plans, as it has for many other firms.

Windows Ship Dates

DESKTOP OPERATING SYSTEMS	
Windows 2000	Feb. 2000
Windows XP	October 2001
Longhorn	Expected 2004
SERVER OPERATING SYSTEMS	
Windows 2000	Feb. 2000
Windows .Net Server	Expected 2003
Longhorn	Expected 2004

Note: Ship dates indicate when the product is expected to become generally available to customers.

SOURCE: MICROSOFT CORP.

Critics Say Microsoft Patch Download Site Has Faults

BY JAIKUMAR VIJAYAN

Problems with the consumer version of an online extension to Windows that's aimed at making patch installation easier are prompting concerns about the reliability of an upcoming corporate release of the Microsoft Corp. technology.

But Steve Lipner, Microsoft's director of security, claimed last week that the concerns are misplaced and said that the corporate version of the Windows Update technology is working fine in beta-test trials.

Russ Cooper, moderator of NTBugtraq, an online mailing list covering Windows NT security, advised users to stop using Windows Update for downloading patches, claiming that it's unreliable.

Windows Update is basically designed to give users a way to quickly locate and download software patches for fixing security vulnerabilities on individual systems.

Cooper said it's dangerous for users to rely on the technology for several reasons.

For instance, sometimes the Windows Update Web site informs users that they're adequately patched when in fact they aren't, he said. At other times, it asks them to patch systems that have already been patched, or it doesn't install a patch fully, Cooper claimed. Windows Update's method of determining successful patch installation can't be trusted either, he added.

Susan Bradley, a Microsoft Certified Professional and certified public accountant at Tamiyasu, Smith, Horn and Braun Accountancy Corp. in Fresno, Calif., said she recommends that network administrators not use Windows Update for security patches. However, "there are certain critical hot fixes that are not security-related but still needed," she added. "It is very easy to download these for the XP machines [using Windows Update]."

Microsoft plans to release the corporate edition of Windows Update later this quarter. The technology is being introduced as part of the company's Strategic Technology Protection Program announced last fall.

The corporate version will not only dynamically alert companies of new patches, but it will also give them a way to more efficiently manage and distribute patches across their networks, Lipner said.

Cooper said the problem is that the two versions are based on the same technology, so whatever the consumer version of Windows Update does, the corporate edition does too, "and in the same way."

Microsoft is also working on streamlining its patch releasing process, Lipner said. Currently, patches are available from myriad sources and services, which at times yield conflicting information. "We know there are issues, and this is something that we are certainly working on fixing," Lipner said. "This is not something we can wave a magic wand over."

Pete Lindstrom, an analyst at Framingham, Mass.-based Hurwitz Group Inc., said these are issues that Microsoft is aware of and has been trying to address for some time now.

"I think they worked hard to facilitate [the patching process]. But there's so little trust on the users' part that most [of this effort] has been unrecognized," Lindstrom said.

Update Downsides

Critics charge that Microsoft's Windows Update:

- **Can't be trusted** to always display the most current and updated versions of software patches.
- **May cause users to waste** time downloading patch components that have already been installed.
- **Doesn't always report** when a patch installation fails.
- **Doesn't verify** what it has installed.

SOURCE: RUSS COOPER, MODERATOR, NTBUGTRAQ

Quick Link
For the latest IT security news, visit our Security Knowledge Center:
www.computerworld.com/q?k1600

License Bill Could Create IT Headaches

Compatibility issues could cost businesses millions if driver's licenses are standardized

BY PATRICK THIBODEAU
WASHINGTON

CONGRESS THIS week is expected to consider legislation requiring national uniform standards for driver's licenses. The intent is to improve security, an issue of importance to businesses that swipe or scan driver's licenses to authenticate customers.

But creating a driver's license standard would require law enforcement agencies and businesses such as airlines and convenience stores to adopt common scanning and identification systems to proof the licenses, and the trickle-down effect could be costly to both the public and private sectors.

For instance, the Food Marketing Institute in Washington, which represents some 26,000 retail food stores, estimated that changes in the magnetic stripe standard alone could cost its supermarket retailers $175 million in upgrade costs.

Interoperability Key

In the meantime, "if you go straight to [adopting a] smart card, you are going to leave millions of terminals at cash registers and airline counters unable to read the card," said Richard Varn, CIO for the state of Iowa and one of the leaders in the state's effort to improve driver's license security. That would be a mistake, he said.

"You don't want to end up with a counter full of readers for different state cards, so you have to work on standards and interoperability," said Varn.

Key to a successful authentication system will be back-end databases with reliable information maintained by state and federal authorities that businesses can access, Varn said. "A dumb card with smart networks and good databases can do just as well as a smart card," he said.

Legislation being finalized by U.S. Sen. Richard "Dick" Durbin (D-Ill.), chairman of the Senate Subcommittee on Oversight of Government Management, would require states to develop a minimum verification and identification standard. It also seeks unique identifiers encoded in each license.

If Congress passes the bill, law enforcement officials and businesses would then have three years to adopt the necessary technologies to scan and identify the licenses.

Security-Driven

Congress is expected to receive a bill this week seeking national standards for driver's licenses.

MOTIVE: Eight of the terrorists aboard hijacked airliners Sept. 11 had fraudulently obtained identification.

PRIVACY ISSUE: National standards could lead to restrictions on data collected from licenses.

TECHNOLOGY IMPACT: A standard license would force states and businesses to adopt standard technologies to scan and identify cards.

While there's no standard for driver's licenses, the magnetic strip is the most frequently used technology. But some states are using 2-D or 3-D bar codes, and others are eyeing smart cards.

John Hervey, chief technical officer at the Alexandria, Va.-based National Association of Convenience Stores (NACS), said his biggest concern is backward compatibility with existing systems.

Many retailers, including the 130,000 stores represented by the NACS, use magnetic strip readers for everything from credit cards to driver's licenses. Changing those systems would cost millions of dollars, Hervey said.

"I don't think you can do away with mag stripe technology immediately," said Hervey, who believes that a driver's license could incorporate multiple technologies that could satisfy magnetic strips as well as bar code readers.

Privacy issues will also be significant. By swiping driver's licenses, a business can capture that data and use it for customer relationship management, which scares some privacy advocates. Putting limits on what businesses can do with that data will likely be part of the debate. ◗

Quick Link For more government-related news and resources, visit our Web site.
www.computerworld.com/q?s1300

Health Care Group: Lack Of IT Leads to Deaths

Patient care data still handwritten

BY BOB BREWIN
BOSTON

Despite annual revenue of $1.3 trillion, or 14% of the gross national product, the U.S. health care industry's use of IT is outmoded and endangers patients' lives, according to doctors, health plan administrators, analysts and health care IT managers.

While health care tops the nation's industries in revenue, "medical records are scraps of paper," said Dr. Harris Berman, CEO of Tufts Associated Health Plans Inc. in Waltham, Mass. "And 99% of them are handwritten," added Berman, who spoke at the annual Gartner Healthcare Business and IT Summit here last week.

Physicians' notoriously bad handwriting is no joke either, said Dr. Arnie Milstein, medical director at the Pacific Business Group on Health. The San Francisco-based organization represents large California employers, which collectively spend $3 billion a year on health care. Milstein said the lack of widespread use of computer physician order entry (CPOE) systems "kills people."

Milstein is a founder and key backer of The Leapfrog Group, a Washington-based health care consortium that is pushing adoption of CPOE. The group was started in 2000 by The Business Roundtable, a Washington-based organization that draws its membership from the CEOs of Fortune 500 companies. According to Milstein, CPOE systems would "eliminate half a million medical errors a year."

CPOE could ensure, among other things, that the right drug is delivered to the right patient, with built-in alarms to indicate any allergic reaction. Leapfrog estimates that "98,000 people die each year in America's hospitals as a result of medical mistakes that are preventable."

JUST THE FACTS

A Paper Tragedy

The bottom line of paper-based health care:

- **More deaths in hospitals result from medical errors than from auto accidents, breast cancer or AIDS.**
- **Medical errors can lead to permanent disabilities, extended hospital stays and expensive additional treatments.**

SOURCE: THE LEAPFROG GROUP, WASHINGTON

Berman said the slow adoption of IT systems by the medical community isn't due to lack of availability. "The technology is out there; we just have to drag the medical community to use it," he said.

CPOE Incentives

Leapfrog intends to use the purchasing power of its 90 major U.S. employers to push adoption of CPOE by compensating hospitals that adopt the system with more referrals and higher fees, according to Milstein. The idea is to reward excellence in health care in the same way that General Motors Corp. rewards its quality suppliers with large contracts.

Leapfrog wants the approximately 1,000 major urban and suburban hospitals that have joined its program to start using CPOE quickly, with a deadline of Dec. 31, 2004 — a daunting task, said Milstein, considering the state of IT in the health care industry.

In fact, Dr. Rocky Fredrickson, associate chief medical officer at Seattle-based Providence Health System, said he finds that deadline impossible to meet.

"It's not going to happen," Fredrickson said, primarily because "no off-the-shelf CPOE system exists today." A time frame of 2007 to 2010 is a more realistic goal for CPOE, he said.

The key problem with CPOE, Fredrickson said, is that physicians are independent; they don't work for hospitals, and they are loath to adopt any system that's seen as bureaucratic. Using CPOE will "slow [doctors] down," he said. "You can't sell it on convenience. You have to sell it on patient safety." ◗

Quick Link For more about the issues involved in physicians' adoption of key technologies, visit:
www.computerworld.com/q?29117

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BRIEFS

Weak IT Spending Hurts Microsoft

Microsoft Corp. reported revenue of $7.25 billion for its third quarter ended March 31, up 13% from the year-earlier level of $6.4 billion. But sales were below earlier expectations, and John Connors, Microsoft's chief financial officer, said fourth-quarter revenue will likely drop to about $7 billion. "IT spending levels are simply lower than we had expected," Connors said.

Sun Takes Q3 Loss, Plans More Cuts

Sun Microsystems Inc. also cited continued reductions in IT spending when it reported a $37 million loss for its third quarter ended March 31. Revenue totaled $3.1 billion, down 24% from $4.1 billion in the same period a year ago. Sun, which laid off 4,000 workers last fall, said it will cut another 1,000 jobs during the next six to nine months.

Hitachi Strikes Back At EMC With Suit

A week after being accused of infringing on six storage management patents held by EMC Corp., Tokyo-based Hitachi Ltd. denied the claims and filed a lawsuit in U.S. District Court charging that EMC has infringed on eight of its patents. Hopkinton, Mass.-based EMC said it would review Hitachi's allegations before commenting on them specifically.

Short Takes

SWISS, the Zurich-based successor to bankrupt airline **SWISSAIR GROUP**, signed a series of IT outsourcing deals valued at about $200 million with Plano, Texas-based **ELECTRONIC DATA SYSTEMS CORP.** . . . The **WORLD WIDE WEB CONSORTIUM** officially endorsed the Platform for Privacy Preferences 1.0 specification, known as P3P, for use on Web sites and in browsers.

Proposed Regs Could Make Banks Boost IT Spending

Databases, reporting systems to meet risk management standards could cost millions

BY LUCAS MEARIAN

FINANCIAL SERVICES

PROPOSED changes to international reporting regulations could compel banks to spend perhaps tens of millions of dollars on technology over the next several years.

The purpose of the regulations is to gather data and create credit and operational risk management models for government oversight. But there could be a lot of resistance, based on preliminary feedback from senior banking executives and IT managers.

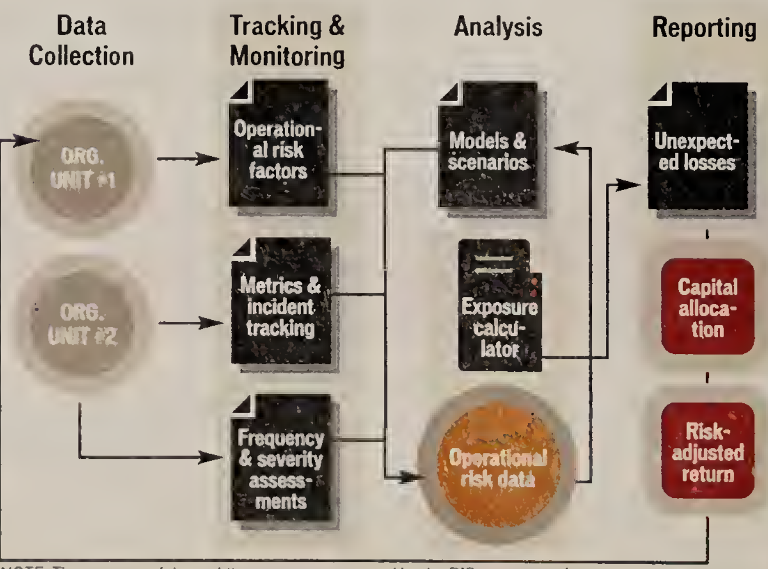
The forthcoming Basel Capital Accord is expected to be finalized by the Bank for International Settlements (BIS) in Basel, Switzerland, by the end of this year. Some organizations may then be faced with building out databases, reporting systems and integration technologies — such as extraction, transformation and loading technologies — to take advantage of proposed risk management standards, according to a report released earlier this month by Meridien Research Inc. in Newton, Mass.

Unlike current regulations, the new accord addresses requirements for information systems and will likely require banks to set aside capital for operational risks — a first for the industry, according to the report. While many major financial institutions throughout the world have enterprise risk systems in place, "few of those systems are capable of automatically generating regulatory reporting," Meridien's report states.

First Interstate BancSystem Inc., a commercial lender in Billings, Mont., uses a manually intensive process to determine credit ratings. The process would have to be automated at great expense to take advantage of the new provisions, said Jonathan Scott, Internet service project leader at the bank.

Regulatory Impact

The technology required to create operational risk models under the proposed Basel Capital Accord are similar to what credit risk systems use. It will be focused around data aggregation and management tools.



SOURCE: MERIDIEN RESEARCH INC. NEWTON MASS

NOTE: The portions of the architecture most impacted by the BIS recommendations are shaded.

According to Scott, a credit reviewer goes through all of the files related to a customer to understand the risk of extending a credit or loan to him. That information is then tied back to software that does credit scoring. "But that's not automated, and it doesn't upload into our databases," said Scott.

He noted that in his view, the BIS proposal offers few incentives to build a more automated and centralized internal credit and operational risk evaluation system.

Biding Their Time

The BIS's recommendations are expected to be adopted by international regulators sometime around 2006. Because that's still four years off, many IT managers and business executives believe there's no rush to build systems for tracking and reporting credit and operational risks, said Debbie Williams, research director and co-founder of Meridien. Big mistake, she said.

"It could very well take the next four years to get [all of the needed systems] in place," Williams said. "It's not just a question of creating a database and populating it. This could mean a change in business practices as well."

The BIS coordinates regulations in financial services. Its board makes recommendations on industry rules, which are then adopted by regulators in the U.S. and around the world.

In January 2001, the BIS's Basel Committee on Banking Supervision issued a proposal for a new Capital Accord. Once finalized, it will replace one issued in 1988 that required banks to set aside at least 8% of their capital to cover their credit risks even if some loans were less risky than others.

> It could very well take the next four years to get [all of the needed systems] in place.
>
> DEBBIE WILLIAMS, RESEARCH DIRECTOR, MERIDIEN RESEARCH

The new accord offers banks an opportunity to create a tiered, internal ratings-based model that many firms already use. The new reporting model allows them to set aside less capital, based on a customer's credit ratings and other factors.

In a comment submitted to the BIS Web site, Charlotte, N.C.-based Bank of America Corp.'s chief financial officer, James Hance Jr., called the proposal "costly to implement," adding that there's little incentive for banks to adopt the internal model.

"Since the methodologies and databases for measuring operational risk are still in a nascent state of development, we believe most banks will use the standardized approach for operational risk for the intermediate term," Hance wrote. ▶

Quick Link Hundreds of financial services firms have submitted opinions on the new Basel Capital Accord proposal, many of them bemoaning it as a vague, costly undertaking with few incentives. To read these reactions and connect with other BIS-related sites, see the following:

- An overview of the new Basel Capital Accord: **www.computerworld.com/q?a1850**
- An explanatory note from the Basel Committee on the new accord: **www.computerworld.com/q?a1860**
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U.S. Army to Centralize Network Security Scanning

Aims to preempt threats with vulnerability detection, automated patch management

BY DAN VERTON

THE U.S. ARMY last week announced a major new initiative designed to help the service get its arms around vulnerability analysis and automated patch management for more than 1.5 million workstations around the world.

Through a multimillion-dollar contract with Melbourne, Fla.-based Harris Corp., the Army will deploy the company's Security Threat Avoidance Technology (STAT) Scanner vulnerability assessment tool worldwide, including in all post, camp and station networks, tactical networks, mobile subscriber networks and the Army Tactical Internet.

The Harris tool is the latest addition to a group of scanning tools that the Army uses, said Patrick Swan, a spokesman for the Army's CIO office.

Defense in Depth

"Our goal is to automate as much as we can to allow systems administrators to concentrate on the many other things that they are required to do," said Swan. He added that part of the goal of the Harris deployment is to centralize global monitoring at the Pentagon to provide an overall view of the Army's global network risk posture. "Our approach is a defense in depth using many different tools," he said.

Word of the Army program comes as the SANS Institute, a Bethesda, Md.-based research organization for systems administrators and security managers, is close to completing a "consensus list" of the highest-priority vulnerabilities detected by the most popular automated scanning systems. The tools include those offered by Internet Security Systems Inc. (ISS) in Atlanta; Symantec Corp. in Cupertino, Calif.; and the National Institute of Standards and Technology in Gaithersburg, Md., as well as Nessus shareware. Harris' STAT Scanner hasn't been added yet but likely will be in the near future, said Alan Paller, director of SANS.

"The shortcut to improved security [is] universal, repeatable monitoring," said Paller, adding that NASA uses ISS Scanner to keep tabs on vulnerabilities. "The Army is now trying Harris STAT. The big difference is that NASA picked the most critical vulnerabilities rather than looking at all 2,000. The latter always leads to overload and lack of action. NASA's approach works."

SANS is also working on a site certification program based on the consensus vulnerability list, Paller said. Weekly updates will make the service "enormously useful" to administrators who are increasingly becoming buried under the large volume of scan reports, "not knowing which of the problems ... are actually important," he said.

A potential difference between the Army's program and one appropriate for a business lies in the level of risk that individual systems face, said Richard Hunter, an analyst at Gartner Inc. in Stamford, Conn.

"It's unclear what level of analysis is being done beforehand to determine appropriate levels of security for particular systems," said Hunter, referring to the Army's rollout of STAT Scanner. "In most businesses, it's a waste of resources to protect every system to the maximum extent possible. Some systems just aren't that mission-critical." ◗

Quick Link For access to additional resources, visit our Security Knowledge Center.
www.computerworld.com/q?k1600

About STAT Scanner

OPERATING SYSTEMS: Microsoft Corp. Windows NT, Windows 2000 and Windows XP; Linux; and Unix

WHAT IT DOES: Assesses more than 1,400 network security vulnerabilities and automatically repairs many of them.

WHAT IT INCLUDES: In addition to Scanner, the STAT product suite includes **Neutralizer,** a behavior-based intrusion-prevention tool that short-circuits security threats, and **Analyzer,** a network security risk-assessment tool that automates and streamlines network security assessment.

Tool Aims to Minimize Firms' Insider Threat

Software merges physical, network layers

BY DAN VERTON

Trusted insiders with malicious intentions and access to physical connections to IT networks could face a new security system that may even take their picture while they're in the act of sabotage.

ITT Industries Inc. in White Plains, N.Y., has introduced a real-time asset-management application that's currently being deployed throughout a major financial institution, which it declined to name due to contractual and security reasons.

According to Jonathan Blitt, president of the ITT Industries Network Systems & Services division, the LANSense product integrates physical security with network security and enables administrators and security personnel to isolate and identify the source of network anomalies or failures.

LANSense is a nonproprietary, intelligent and self-documenting network asset-management system that integrates third-party network management systems with the management of copper and fiber structured cabling installations. It can also be integrated with camera monitoring systems that can capture an image of whoever is working at the patch panel at the instant a failure occurs.

"It actually rests in the data communications closet," said Blitt. "If a plug is pulled out of a patch panel, the system is set up so that it can snap a picture of that person, or an audio alarm can go off, or it can send a page or an e-mail with a picture attached."

ITT can install special patch panels that have a small metal strip above each port, referred to as a "ninth wire," that carries an electrical current. When something is moved, it breaks the current, sending a signal to a database.

Monitoring 'Heartbeats'

"Each computer has its own heartbeat, and that heartbeat identifies a user's authorized space," said Blitt. When something is changed at the patch panel or access is attempted at a physical location that's different from what's in the database, the system searches in real time to see if that activity is authorized, he said.

Gary O'Neall, chief Internet officer at PlaceWare Inc., an online conferencing provider in Mountain View, Calif., said he agrees that merging physical and network security is a value add. O'Neall, who once worked in the intrusion-detection field, said he regularly found open ports and configuration errors that made tracing operational problems difficult.

Keith Morgan, chief of information security at Terradon Communications Group LLC, a Nitro, W.Va.-based content management company, said having such a system in place is a good idea.

"I can think of hundreds of cases throughout my career where an error in the wiring closets, or someone intentionally or accidentally disconnecting a patch cable has caused downtime," said Morgan. "I remember one case where an engineer brushed against some cabling in a wiring closet, disconnecting our entire Internet pipe. He had no idea that it had happened, and it took us quite some time to nail down." ◗

How LANSense Works

- **LANSense** monitors, records and reports the status of all connected passive and active ports.
  It works with popular network management tools, such as HP's OpenView and IBM's Tivoli.

- **Patch cords** have an unobtrusive external probe built into the plug boot, which mates with the sensors built into the patch panels above the connector ports.
  When a patch cord is inserted or removed from a sensor patch panel, electronic analyzers detect the change and update the information within the software, which can be viewed in real time over the Internet.

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Wireless Financial Apps Grow Slowly

U.S. consumers hold off on mobile services, while Wall Street embraces technology

BY LUCAS MEARIAN
CAMBRIDGE, MASS.

WHILE wireless applications for financial services are gaining popularity in Europe and Asia, U.S. consumers aren't likely to embrace these mobile services anytime soon, according to IT managers and industry experts who spoke at an e-business forum here last week. But there is a mature market for wireless business applications on Wall Street.

Octavio Marenzi, an analyst at Cambridge, Mass.-based Celent Communications LLC, said the number of global wireless financial services customers is expected to reach 80 million by 2004. But only about 3% of those will be U.S. clients.

Between 62% and 75% of adults in Europe have cell phones or personal digital assistants (PDA), but just 40% of adults in the U.S. have such devices, according to Blaise Heltai, managing director of Internet strategy and management at Boston-based FleetBoston Financial Corp.

"Messaging is the killer app," Heltai said.

Sales and Marketing

Part of the roadblock to domestic adoption of wireless financial applications is the fact that "no one's going to sit down and do block trades over a cellular phone," said Marenzi.

Wireless technology will be more of a sales and marketing tool, since news feeds and stock market alerts are the kinds of services that U.S. users are more likely to adopt, he added.

Even though they have been slow to catch on with consumers, wireless applications are now being used by 80% of the top 25 firms on Wall Street, according to Celent. On the floor of the New York Stock Exchange, for example, brokers use PDAs to receive orders and to send them to "trading posts," where they are executed.

For its part, FleetBoston set its mobile and e-commerce course in June 2000 based on the assumption that adoption would be slow, Heltai said.

"We spent under $100,000 on [wireless] home banking," Heltai said. Initially, the bank developed a text-based interface for wireless PDAs to its HomeLink online banking application. "We made our money back," Heltai added. "ROI can work, if the I [for investment] is kept small."

Some U.S. firms are spending between $5 million and $50 million on wireless applications, "and you really can't justify that," Marenzi said.

Hiroshi Egami, director and general manager of e-business and the IT strategies division at The Bank of Tokyo-Mitsubishi Ltd., said his company has found moderate success with its mobile offering, Tokyo-Mitsubishi Direct.

So far, 1.5 million customers have signed up for the wireless service, a number that's equivalent to the combined total of customers at 30 of the bank's branch offices.

"Since Japanese banks are connected by a national clearinghouse, [customers] can make real-time simple funds transfers," Egami said.

The bank's customers make 100,000 money transfers per month via cell phone, which equates to 10% of the bank's transfer transactions, he said.

"I believe the mobile market in Japan has reached a mature level," Egami said. "More than half of our customers said [in a poll] that they expect mobile banking as part of their banking services." ◗

Wireless Outlook

- Enterprise applications will continue to grow quickly, dominated by PDAs at the user level.
- Interest in financial services apps remains almost nonexistent among U.S. consumers.
- Interest is much higher for urgent messaging and location-based services (navigation tools, e-mail, Yellow Pages).
- Short Messaging Service will be slow to take off unless it integrates with instant messaging services.

SOURCE: CELENT COMMUNICATIONS LLC, CAMBRIDGE, MASS

Quick Link To read more on this topic, visit our Mobile/Wireless Knowledge Center:
computerworld.com/q?k1000

Oracle Pushes Database Upgrade, but Users Still Leery

Pricing concerns linger as new 9i release approaches

BY MARC L. SONGINI
SAN DIEGO

As Oracle Corp. prepares to roll out a database upgrade that's due for release next month, users and analysts last week said software pricing and support issues are affecting the company's relations with some of its database customers.

Oracle executives detailed plans for Release 2 of the company's Oracle9i software at a conference run by the International Oracle Users Group (IOUG), an independent association of database users that's based in Chicago. Oracle said the upgrade will include manageability and performance enhancements, plus other new features (see box).

Users at the IOUG conference here said the new release could provide some benefits, such as increased automation of database cluster management and improved performance on decision support applications. But several attendees noted that Oracle needs to overcome some stumbling blocks if it wants to keep users from considering a switch to Microsoft Corp.'s SQL Server or other rival databases.

"I think customer relations is an issue [for Oracle]," said Charlie Garry, an analyst at Meta Group Inc. in Stamford, Conn. Both Meta and Gartner Inc., which is also based in Stamford, took Oracle to task for its database pricing policies in reports released last month.

Oracle, which this month adopted a more conciliatory tone in an attempt to smooth over upgrade issues with users of its applications, has said that the processor-based database pricing it announced last June was meant to simplify licensing for users. Last week, an Oracle spokeswoman noted that the standard edition of Oracle9i is priced to be directly competitive with SQL Server.

Cost Could Be an Issue

Garry said many IT managers still don't think SQL Server offers the kind of data availability and system performance that Oracle9i does. But cost issues may eventually prompt some users to rethink their allegiances to Oracle, Garry added.

"Oracle is getting a little pricey right now, and it's a bargaining chip to have [SQL Server as an option]," said Douglas White, a database administrator at a major U.S. university. White's school, which he asked not be identified, uses Oracle8i and Oracle7 and is running the first release of Oracle9i in test mode.

"We're used to Oracle, and it's what the users want," White said. But he added that some database administrators at the school have started to rely on SQL Server instead.

Oracle's pricing is confusing, said Mindy Bohannon, a lead IT analyst at Cleveland-based industrial manufacturer Eaton Corp. "They change it every year," said Bohannon, who works in Eaton's e-commerce group and uses Oracle8i to power the company's Web site.

Support was another issue raised by some users at the IOUG conference. For example, Chris Colclough, a senior professional staffer at Johns Hopkins University's applied physics laboratory in Baltimore, said an Oracle customer support worker used to come by on a regular basis. But those visits have stopped, he said.

While Colclough said Oracle's overall support is adequate, he added that the on-site visits were useful in resolving "the more esoteric problems." ◗

Database Additions

Oracle plans to include the following new features in Oracle9i Release 2:

The ability to convert XML data into a relational database format for use in sharing information with business partners.

Support for using standby databases to do read-only functions instead of letting them sit idly.

Full integration of data mining and analysis tools, so end users can run queries directly against databases.

Quick Link California's state auditor criticizes an Oracle licensing deal signed last year.
www.computerworld.com/q?29135

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Continued from page 1

Servers

jobs, said a half-dozen attendees at last week's spring conference of the American Federation of Computer Operations Management (AFCOM) here.

"We still have to get our hands around open systems," said Pete Lillo, manager of data center operations at NCCI Holdings Inc., a Boca Raton, Fla.-based company that collects and processes data for firms in the workers' compensation industry.

NCCI's data center currently houses a mainframe, 20 Unix servers and about 130 Windows-based systems. Early last year, Lillo said, a new CIO persuaded managers at the company to adopt a unified change-management process.

But there's more to be done, Lillo said. NCCI puts its application source code data in four separate repositories that were set up for the different types of systems. A proposal to develop a single repository or provide a common view of the existing data has received preliminary approval but is still in the evaluation stage, Lillo said.

Operation Server

AFCOM attendees listed the following tips for data center managers who are asked to provide systems operation support for departmental Unix or Windows servers:

BUILD a working relationship with the business managers whose servers are being put under your control.

MAKE SURE your level of systems management responsibilities are spelled out in advance.

INVEST in the amount of training needed to get data center personnel ready to handle the new systems.

DEVELOP ROI calculations or other business cases supporting common operation procedures across servers.

AVOID an us-vs.-them attitude and be willing to compromise on some management processes to reach a mutually agreeable starting point.

Lillo is also seeking funding for enterprise job scheduling software. He said there's no common scheduling tool now, which means that data center workers at NCCI "really don't manage [the process] the way I'd like it to be managed."

Other IT managers at the semiannual conference run by AFCOM, an Orange, Calif.-based association for data center professionals, said they face similar challenges.

Coordinating operation support procedures on Unix and Windows servers "is the biggest problem we have," said David Sandberg, chief of the business management division at the Defense Information Systems Agency's data center in Ogden, Utah. The facility controls 140 servers and a pair of mainframes. Sandberg said he's looking to create a team that would take charge of tracking the configurations of all of the systems and potentially set up a common change-management process. But nothing is definite yet, he added.

Gary Yeck, an analyst at Meta Group Inc. in Stamford, Conn., said much of the resistance to adopting more rigid systems operation procedures boils down to a distrust of mainframe methods.

"Walk into any data center and talk to the distributed [systems] people, and they think *mainframe* is a dirty word," Yeck said. "They don't want to carry forward any of the disciplines we've learned from the mainframe world."

But some IT managers are finding ways to get around that resistance. For example, Royal Bank of Canada next weekend is due to finish converting the last of 43 server-based applications as part of an 18-month project that was designed to let its data center personnel use mainframe tools to do multiplatform job scheduling and workload balancing.

Business units didn't have to sign up, said Patrick Morassutti, manager of enterprise scheduling and batch automation at the Toronto-based bank. But they were told that if they didn't, they would have to monitor overnight batch jobs themselves. "They get scared when you say that," he said. "No one's opted out yet." ◗

Don't Forget About ROI

LAS VEGAS

The need to install tools that automate IT operations across multiple systems may be self-evident to data center managers. But AFCOM attendees said the senior executives who have to sign off on such projects want to see something more tangible: returns on investment.

Pete Lillo, manager of data center operations at NCCI Holdings, said he's currently working to cost-justify a proposed investment in enterprise job-scheduling software. The tools that he's considering would probably cost between $200,000 and $400,000, Lillo estimated, adding, "And I have to justify in business terms why it's necessary."

Lillo is due to present the proposal within the next couple of weeks. If all goes well, he said, an enterprise scheduler could be in place by year's end.

Mark Levin, an analyst at Meta Group, said many data center managers aren't well versed in doing ROI calculations. And the cost of new data center tools may be exacerbated by the need to hire contractors to handle the actual installation work, he added.

One of the potential benefits of multiplatform tools is a reduced need for system operators. Patrick Morassutti, manager of enterprise scheduling and batch automation at Royal Bank of Canada, said an installation of systems management middleware developed by Alpharetta, Ga.-based Stonebranch Inc. enabled the bank to cut 18 operations jobs.

But all of the affected data center workers were reassigned to other positions, and Morassutti said the big justification for installing the software as part of an 18-month project to standardize multiplatform operations was the fact that uncoordinated job scheduling was causing systems errors. "Downtime costs us more money than people do," he said.

– Craig Stedman

Continued from page 1

Shortage

current crisis," said Kent Howell, manager of computer operations in the 400-person IT group at Illinois Power Co. in Decatur.

"What we're looking at is an aging staff of mainframe personnel" coupled with the prospect of maintaining legacy systems "for quite a number of years," Howell said during a roundtable discussion on mainframe skills at last week's American Federation of Computer Operations Management conference for enterprise data center managers in Las Vegas. "And with that kind of problem, it's never too early to start planning."

Rather than hiring new employees, Illinois Power plans to refresh its mainframe expertise by teaching mainframe skills to younger employees already on staff and working in open systems.

"We're also looking at salary issues to try and entice these people to keep an interest in the mainframe side," Howell said. "Two years ago, we paid premiums for open-systems development skills. Now we're starting to look at premiums for mainframes."

AT A GLANCE

Tips for Skills Management

How to avoid a mainframe skills crisis five years out:

IDENTIFY staffers with critical mainframe knowledge and assign younger IT workers to shadow them and learn from them.

CREATE talent alliances with neighboring companies to train and share workers with key skills.

INSTITUTE bonuses for aging skills.

ASSIDUOUSLY TRACK all IT skills in use at your firm, not just the latest hot skills.

SOURCE: GARTNER INC., STAMFORD, CONN.

But experts say that companies such as Illinois Power are definitely in the minority.

More than 90% of 300 companies that have mainframe staffs said in a recent Meta Group Inc. survey that they have "zero strategy" for dealing with the diminishing pool of skilled mainframe workers. Stamford, Conn.-based Meta estimates that 55% of IT workers with mainframe experience are over 50 years old.

"Most companies do a very poor job of managing and planning their skills base, especially their aging skills base," agreed Diane Tunick Morello, an analyst at Gartner Inc., also in Stamford. "Companies don't realize they're putting themselves at risk because they have a heavy part of their day-to-day business relying on skills not even being taught in schools any longer."

Meanwhile, vendors see a huge market opportunity in such risk. For example, Sun Microsystems Inc. by no means expects users to abandon their multibillion-dollar investments in Cobol and other legacy applications, according to Don Whitehead, director of business and market development for Sun's enterprise systems products group.

So Sun has adopted technology designed to port such applications to servers running its Solaris operating system.

"We're preserving the ability to write Cobol code and use it in a Unix environment," said Whitehead. ◗

Quick Link For more on the mainframe skills shortage, please visit our Web site:

www.computerworld.com/q?27672

Regional Floral Network, January 14

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Each blade connects to the network infrastructure already embedded in the chassis, dramatically cutting the number of cables needed. With far fewer cables to fuss with, they're far easier to manage and maintain than conventional servers. Even management is shared. Which means all 38 blades can be viewed and monitored as a single system.

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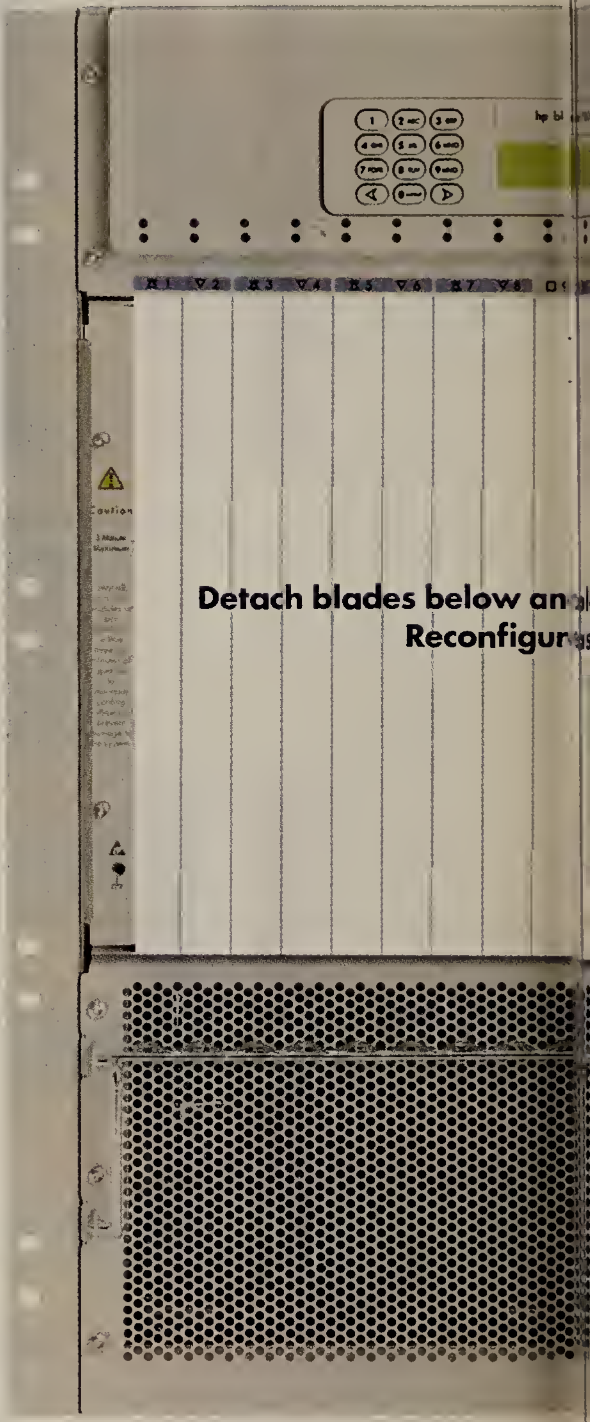
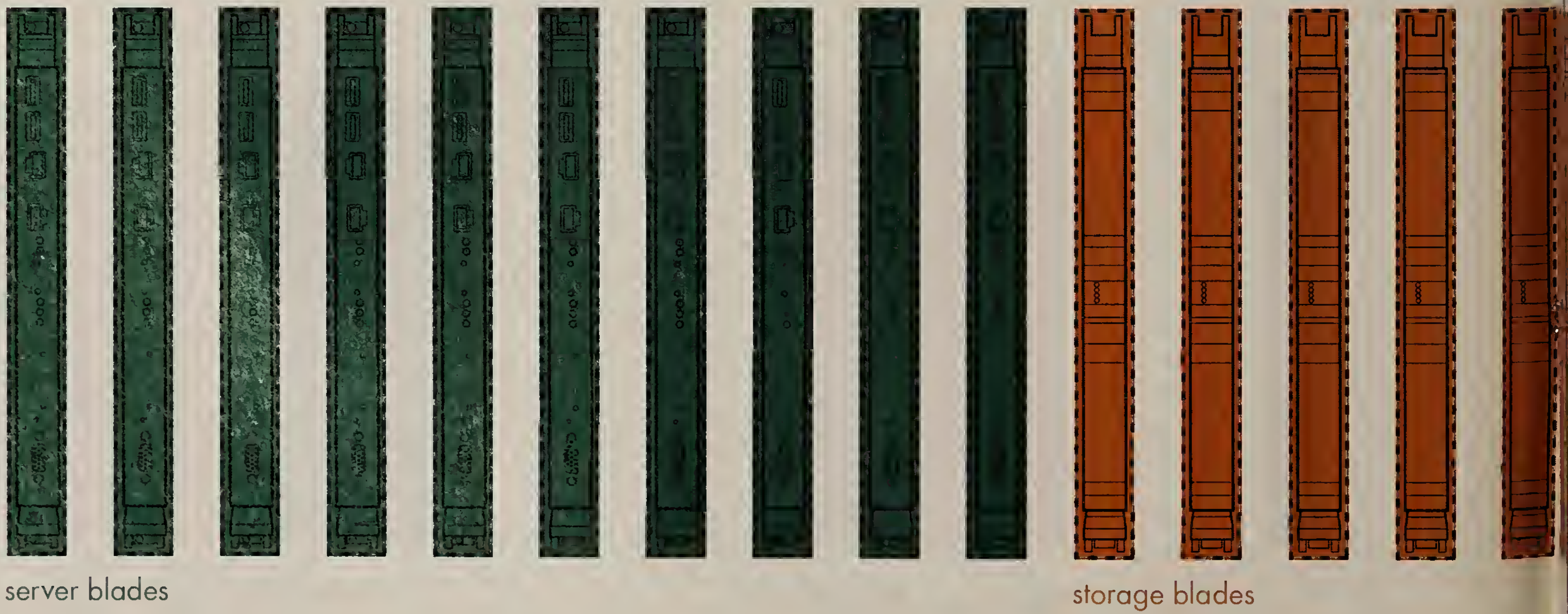
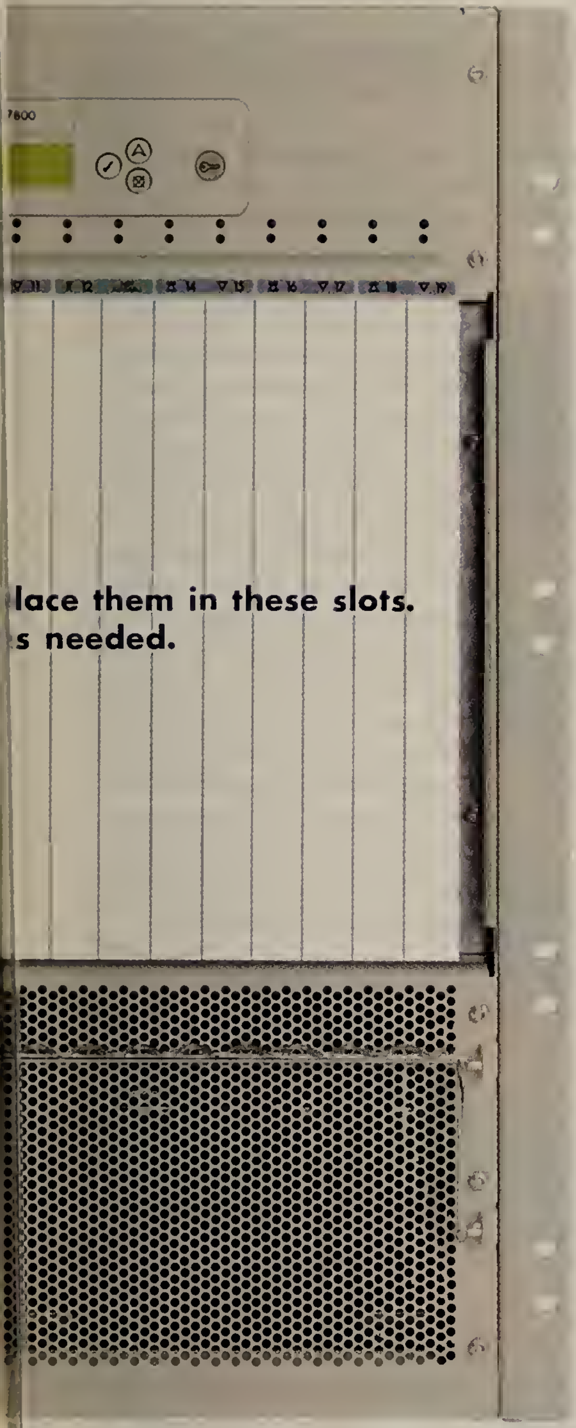
Since all blades in the chassis share the same power and cooling source, they're also more energy and space efficient. In fact, you'll find HP Blade servers







lace them in these slots.
s needed.

reduce the typical number of fans and power supplies required by as much as 60%.

The reliability advantages of moving to blades are profound. To give you some perspective, imagine building a server cluster solution that is comparable to a fully loaded HP Blade server cabinet. The projected annual failure rate of the HP Blade server solution is about 41% lower than that of the comparable server cluster.

In the unlikely event that a blade should fail, the problem is isolated in the same way that multiple systems connected by I/O are isolated from each other.

Is your server as sharp as a blade?

Servicing a blade is as easy as deploying one. Each blade is freely accessible from both the front and rear of the cabinet and can thus be replaced at a moment's notice. Each slot can be powered on or off separately. Hot-swap and hot-plug technology is implemented throughout, allowing for the seamless addition or replacement of blades while the rest of your infrastructure continues to hum.

We invite you to read our technical white paper on HP Blade servers. Or, better yet, talk directly with one of our infrastructure specialists to find out more about how HP Blade servers can change the face of your business. *Give us a call at 1.800.HPASKME, extension 246. Or visit www.hp.com/go/infrastructure.*

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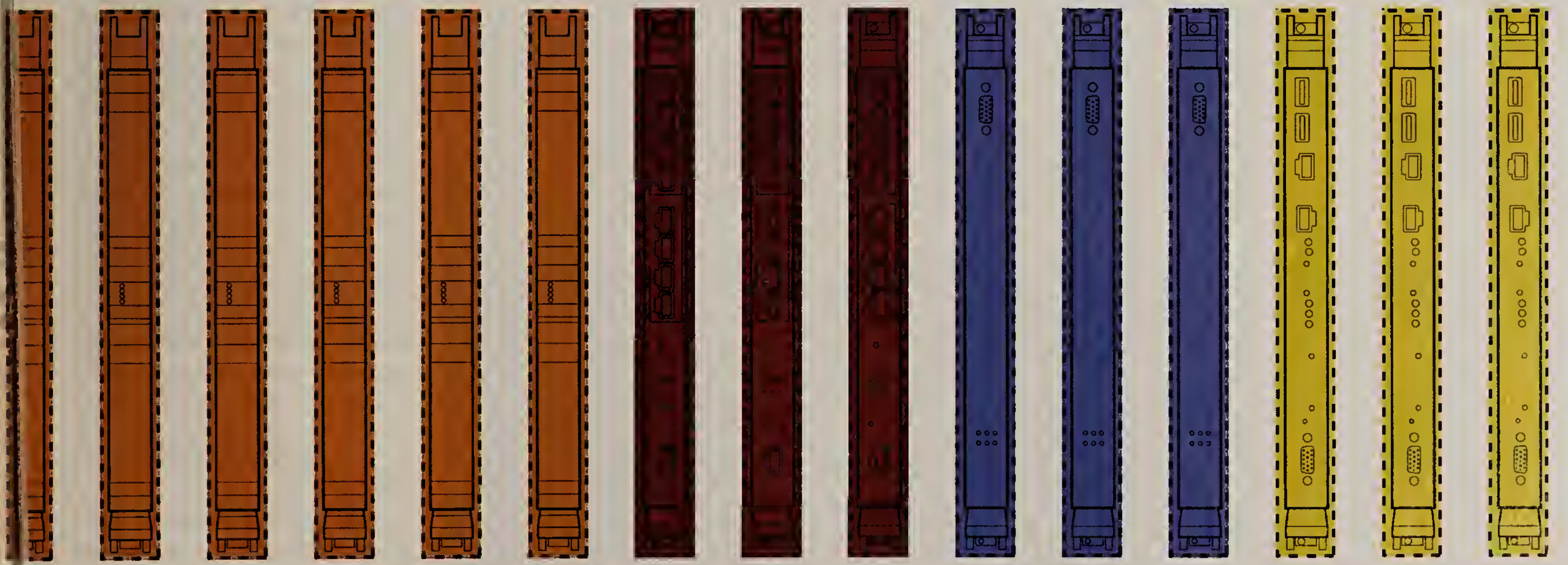

network blades

management blades

appliance blades

Travel Firms in Quest for Interoperability

BY JENNIFER DISABATINO
ATLANTA

Travel companies and the technology vendors that serve them are calling for open standards so they can integrate travel applications. But the industry is so mired in legacy technology that it will likely be fighting that battle for years.

At its first Travel Technology Conference here, Sherman, Conn.-based online travel analysis firm PhoCusWright Inc. last week brought technology vendors and their travel industry customers together to talk about their IT challenges. Almost unanimously they spoke of the need for standards.

Although the Open Travel Alliance is developing XML-based standards, companies such as Orbitz LLC are going ahead on their own, said Alex Zoghlin, chief technology officer at the online travel firm in Chicago. Orbitz's servers run on Linux, and its Web services are based on Java technology.

The shift to standards appears to be centered on two key problems, according to Jeremy Wertheimer, president and CEO of ITA Software Inc. in Cambridge, Mass. First, the travel industry needs to get more sophisticated about its customer transactions, which will mean moving data between suppliers, such as hotels and airlines, through Web services. Second, he said, suppliers are faced with the consolidation and eventual removal of legacy back-end systems.

Replacement Strategy

Craig T. Murphy, CTO at travel IT provider Sabre Holdings Corp., said he doesn't expect Sabre to invest a lot more intellectual property in its Transaction Processing Facility (TPF). Fort Worth, Texas-based Sabre last year sold its TPF hosting business to Plano, Texas-based Electronic Data Systems Corp., and its IT investments are now almost entirely in the development of new technology, Murphy said.

The plan for any legacy system should include a strategy for replacement, said Paul Bahnick, vice president of technology at Farmingdale, N.Y.-based Travel Impressions Ltd., a subsidiary of New York-based American Express Co. that provides wholesale travel packages to travel agents. Bahnick has built middleware that accommodates legacy systems and newer databases so he can gradually shut off the older machines. "We just refuse to spend another dollar on the legacy system itself," he said.

A serious obstacle to the adoption of standards is that many smaller hotels and travel agencies are barely computerized. "Probably 70% of our business is still done by fax," Bahnick said. ◆

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Siebel Looks to Web Services for CRM Ties

BY MICHAEL MEEHAN

Siebel Systems Inc. has announced a Web services-based method for tying its customer relationship management (CRM) software in with other business applications.

The San Mateo, Calif.-based firm will release its Universal Applications Network this summer. Using an IBM-created standard called Web Services Flow Language (WSFL), Siebel will let users model business processes as reusable objects that plug into any enterprise application integration system.

"This could take one major level of effort and worry out of bringing something new into our infrastructure," said Alan Grometstein, vice president of technology at New York-based brokerage Quick & Reilly Inc.

Many vendors have been making noise recently about such easy-to-integrate products. Last month, Novell Inc. executive Chris Stone promised that his company would migrate its product line to XML-based interfaces. Enterprise resource planning giant SAP AG already publishes many application program interfaces in XML and is working with Commerce One Inc. in Pleasanton, Calif., on a common business library for external transactions.

"Everyone's trying to do it; at least they say they are," said Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va. Willett said that many IT development projects have fallen short because they don't necessarily plug into a user's architecture.

"That's why you have this whole integration industry that's developed by building adapters to all these applications," Willett said."

Competing Standards

Grometstein said that he plans to upgrade later this year to Siebel 7, which will handle order management and trade order entry for his retail brokerage and call center. He said he would also like to tie it in with a new PeopleSoft Inc. human resources system.

However, Willett noted that it's hard for any one vendor to offer standardized approaches to integration without support from other vendors. He added that WSFL faces a competing standard called Business Process Modeling Language (BPML), whose supporters include Hewlett-Packard Co. and Sun Microsystems Inc.

"There's been talk of merging the two, and hopefully that will happen," said Willett.

However, Tyler McDaniel, an analyst at Hurwitz Group Inc. in Framingham, Mass., warned that WSFL and BPML "are really too young to be considered standards at all." ◗

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Survey Reveals Unexpected Drop in Insider Attacks

But insider threat may be harder to detect

BY DAN VERTON

Some experts are questioning recent findings that defy the conventional wisdom that insiders constitute the primary threat to enterprise security.

Only 38% of the 455 respondents to the latest computer crime survey sponsored by the FBI and the San Francisco-based Computer Security Institute (CSI) said they had detected insider attacks during the preceding 12 months. That's down from 49% reported a year ago and 71% reported in 2000.

Moreover, two federal CIOs, speaking at a recent conference sponsored by the Tiverton, R.I.-based National High Performance Computing and Communications Council, said their agencies' statistics show that external threats far outweigh internal threats to their IT infrastructures.

"Our biggest threat is external," said NASA CIO Lee Holcomb, acknowledging that 250 agency systems had been recently compromised externally in a matter of three weeks due to vulnerabilities that had gone unpatched.

Insider activity is "much less severe than external" attempts to breach security, agreed Laura Callahan, CIO at the U.S. Department of Labor. She added that since Sept. 11, the agency has made a concerted effort to create what she called an internal "neighborhood watch" to ferret out suspicious activity.

But the threat from insiders has become more cunning and sophisticated, said Robert Wright, a computer security expert at the FBI's National Infrastructure Protection Center. "Insiders are not just employees anymore," Wright said, adding that "new technology makes insiders more dangerous than ever."

According to Wright, the most effective insiders are often "keyholders" — people who have access to a company's internal systems based on contract or partnership arrangements with the organization.

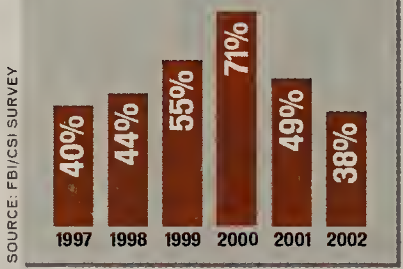
More important, the technology that malicious insiders now have at their disposal may make them harder to detect and more efficient, said Wright. New IT tools that can be employed to steal corporate data include key-chain-size hard drives, steganography (concealing data within a digital image) and wireless technology, said Wright.

Other experts agreed that internal threats warrant continued emphasis.

"I don't believe that many corporations know that the majority of attacks occur behind the firewall," said Mike Hager, vice president of network security and disaster recovery at OppenheimerFunds Distributor Inc. in New York. "And most still believe the firewall will stop them." ◗

Insiders: The Six-Year Low

Percentage of 455 respondents who detected insider abuse incidents:



SOURCE: FBI/CSI SURVEY

Quick Link The FBI say it's still at risk, despite changes made after the arrest of the most damaging mole in its history. ww.computerworld.com/q?29022

For online resources related to the FBI security program, go to **www.computerworld.com/q?a1810**
www.computerworld.com/q?a1820

Amtrak Says IT Outsourcing Deal With IBM Will Save $85M

Railroad to boost IT services for employees

BY LINDA ROSENCRANCE

Amtrak has signed a $229 million IT outsourcing deal with IBM that the passenger railroad said will save it $85 million over the course of the seven-year contract.

The deal, which is an extension of a 10-year agreement between the two companies, calls for IBM Global Services to manage Amtrak's entire computing infrastructure from a data center in Manassas, Va. Because Amtrak still owes IBM $101 million from the previous contract, the total of the renegotiated deal is $330 million, according to an IBM spokeswoman.

Amtrak CIO Bob Galey said the renegotiated agreement will not only save money for his company by cutting the costs of the contract, but it will also give Amtrak more bang for the buck by improving IT services for its 24,000 employees. Amtrak's 23.5 million passengers nationwide will also benefit from improved service as a result of the deal, the company said.

Aiding Alignment

Dwayne Ingram, vice president of travel and transportation at IBM Global Services, said the contract is different from most outsourcing deals because it calls for IBM to help Amtrak align IT with its business strategy.

"We're going to sit down with Amtrak business leaders to map out how IT services should work with business," Ingram said. "We'll be working on several additional projects that will take out costs and increase revenue."

Analysts disagreed on the importance of Amtrak's $85 million savings.

Ronald Utt, a transportation analyst at The Heritage Foundation, a Washington-based think tank, said wryly that $85 million may allow Amtrak to operate for an additional two weeks.

But Tony Hatch, a New York-based transportation analyst, said that the amount is "nothing to sneeze at. Amtrak has to watch every penny, just like public companies, which are responsible to shareholders." ◗

JUST THE FACTS

Under the deal, IBM will:

- **Manage Amtrak's entire computing infrastructure,** including providing help desk support for 7,500 workstations and management of the company's voice and data networks.
- **Manage Amtrak's Arrow reservation system,** which processes up to 3,300 transactions per minute via the Web, telephone and ticket-counter channels.
- **Work with Amtrak to market the Arrow reservation system** to other transportation companies in Europe and Asia/Pacific.

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BRIEFS

IBM, Hitachi to Pool Hard Disk Drive Units

IBM and Hitachi Ltd. will consolidate their hard disk drive businesses into a company that will be majority-owned by Hitachi. IBM said lackluster results in its hard disk drive business and a belief that other sectors of the storage industry offer better growth opportunities led it to enter the deal. Tokyo-based Hitachi will pay IBM an undisclosed amount for a 70% stake in the firm, which will be based in San Jose.

Sterling Inquiry Ends

Computer Associates International Inc. said last week the U.S. Department of Justice (DOJ) has closed its investigation into CA's $4 billion acquisition of Sterling Software Inc. without taking any action. Islandia, N.Y.-based CA said the DOJ's inquiry raised questions similar to those the department posed about CA's buyout of Platinum Technology International Inc. In September, the DOJ accused CA of prematurely taking control of Platinum, a practice known as "gun-jumping." CA denied the charge.

Intel Settles Lawsuit

Intel Corp. has agreed to pay Intergraph Corp. in Huntsville, Ala., $300 million in return for a group of patents, cross-licensing agreements and a cap on damages in a second lawsuit with Intergraph that's still pending.

Intel reported first-quarter revenue of $6.8 billion, down 3% from its previous quarter but up 2% from the same quarter a year ago.

Short Takes

Greg Brady, CEO of **I2 TECHNOLOGIES INC.** in Dallas, stepped down and has been replaced by Sanjiv Sidhu, i2's founder and chairman. Brady will stay on as a member of the board of directors. . . . **IBM** reported "disappointing" first-quarter earnings, which fell by 31% compared with the same period a year ago. Net income was down 32%.

Sun Strives to Mend Its Channel Relations

IForce Partner Program intended to help partners support Sun customers

BY TODD R. WEISS
ORLANDO

FACED WITH A continuing tight economy and slow IT sales, Sun Microsystems Inc. is reaching out to maintain its market share by helping its resellers better serve end users.

At its iForce Partner Summit here, attended by some 275 resellers, Sun last week unveiled an iForce Partner Program that will for the first time give its channel partners a full line of services to better support Sun's customers.

Until now, such services programs were informally organized, said Jon Caputo, vice president of Sun's professional and enterprise services.

"It worked in some cases and didn't in others," he said.

The idea, said Larry Baker, director of enterprise services at Sun, is to give Sun's partners access to the company's full capabilities, which previously weren't always available. The goal is to "provide a consistency of services across the whole spectrum," said Baker.

Wary Welcome

The news was welcomed by several resellers here, but some remained skeptical.

Don James, vice president of sales at Cat Technology Inc., a reseller and systems integrator in Los Gatos, Calif., said Sun still has a lot to prove. "I think Sun is continuing to struggle," he said. "There's a myriad of mixed messages in what they're saying."

At the last Sun partner summit two years ago, when Sun's sales were healthy, the company disregarded the resellers, James said. "They thought they could live without their channel or treated the channel poorly," he said. "That's hurt them for the last 18 months."

What angers resellers is that Sun has made sales directly to end-user firms and cut resellers out of the revenue loop, James said. "Sun continues to book too much business directly, even on accounts that integrators are trying to book with Sun," he said.

"They want exclusivity and loyalty" from resellers, James said of Sun. "But they're not giving you exclusivity or loyalty. They say it's getting better. They've been saying it for several years. It remains to be seen."

Tim Simmons, vice president of sales at Gateway Computer Associates Inc., a Sun value-added reseller in St. Petersburg, Fla., said Sun's messages to its resellers are the right ones. "I'm satisfied with what I've heard here," he said. "I think they're headed in the right direction." ◗

> "They thought they could live without their channel or treated the channel poorly. That's hurt them for the last 18 months."
>
> DON JAMES, VICE PRESIDENT OF SALES AT SUN RESELLER CAT TECHNOLOGY INC.

VP Explains Microsoft's Plan to Improve Security

Paul Flessner, senior vice president of Microsoft Corp.'s .Net Enterprise Server group, recently discussed the company's ongoing Trustworthy Computing initiative with *Computerworld*'s Carol Sliwa.

Can you talk about the impact of Microsoft's intensive security initiative on your product group? The security effort overall is in a couple dimensions. One, it's about education to the development teams. . . . [Two], it's about a thorough review of the code. . . . So the Windows team and the SQL Server team and the Exchange team and the e-business types and [Systems Management Server] teams have all been through this process of training, code review.

And now it's about how things are going to roll out, and what fixes go where, and how we're going to back-level some, and how many just go forward, how many break compatibility. . . . We're hiring outside experts to do threat modeling and threat analysis. We're building our own team internally. . . .

It's hard stuff. It actually takes a special kind of person who thinks . . . out of the box. You really do want a very chaotic thinker. You don't want an analytical person to do it.

Have you had to make staffing shifts because of the need for that type of person? We are hiring those people, if you can find them. They're very hard to find. We are trying to train internal people to start to think chaotically, if you can do that.

FLESSNER: Microsoft needs to practice better "code hygiene."

What products have been most affected by the security reviews? I don't know the answer, honestly. We're still kind of doing the analysis of what the impacts are. Windows went through first, and they're kind of still sifting through all of what they're going to do.

But I feel very positive about it. I really do believe that the work we're doing is going to make a big difference. . . . I think our security model is very sound. Our failing, if you will, is not thinking like a criminal mind and going back and going through areas that we had no idea were vulnerable and patching that up.

Have any products had delayed ship dates because of this security review? Yeah, probably on one level, all of them. You know, all the next releases will have some impact by this work, and probably all of our releases going forward will.

What lessons have you learned as a result of the security review? I think the thing that pops up is, we call it code hygiene — just the need to constantly be replacing code and upgrading it with the latest thinking and ideas. . . . [With] each release, we go in, we rewrite a component of the code because it ages, and it gets beat up over time because of maintenance. I think what we're going to be doing more . . . is being more rigorous about inventorying our code and making sure that we replace it on a more timely basis ◗

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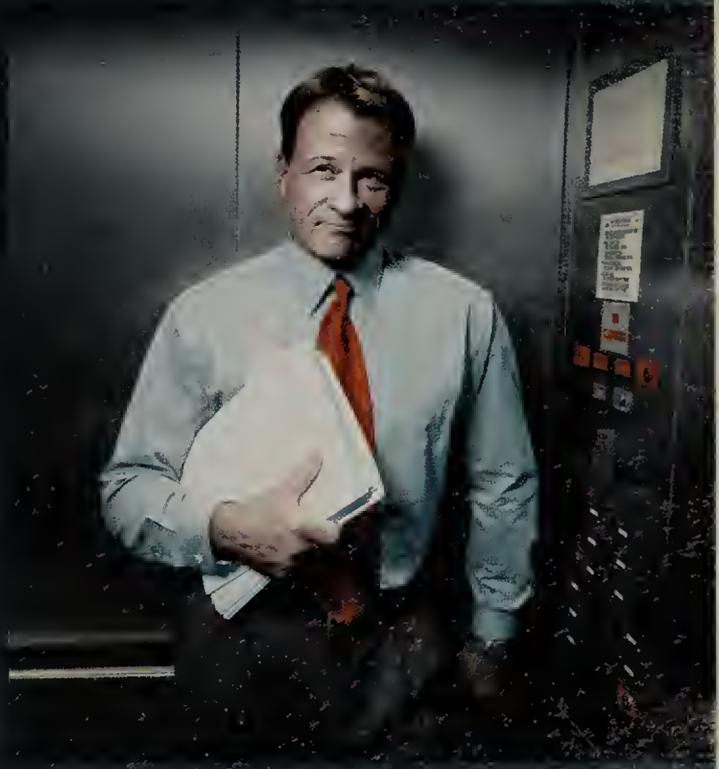

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MARYFRAN JOHNSON

Demystifying ROI

WHO'S AFRAID OF ROI? You are. At least, that's what CFOs would have us all believe. Despite much dutiful attention to the biggest buzzword of the year, the rap persists among CFOs that IT is not only afraid of ROI but also clueless about how to find it, figure it and finesse it.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at **maryfran_johnson@computerworld.com.**

Are the bean counters right? Or are you building ROI credibility in your organization today? Are you getting a reputation for being savvy about applying IT to cost savings or revenue generation?

Maybe not. The fastest way to the heart of ROI is measurement, but that seems to be the first tripwire for IT organizations. At *Computerworld*'s Premier 100 IT Leaders Conference last month, we asked more than 150 IT executives if they measure the ROI of key projects six months after completion. "Rarely or never" said 68% of them, and 65% said they lacked the "knowledge or tools needed" to even do ROI calculations. Ouch.

Yet everybody in IT is aware of the current business mantra: "Show me the ROI." We quote IT managers constantly in our stories about the criticality of fast payback, quick turnaround and customer benefits from their projects. This topic is high on the IT radar scope.

It's even higher on business radar. Some 23% of U.S. companies are demanding detailed ROI analysis to justify IT investments these days, according to a recent survey of 1,200 businesses by Marcoccio Consulting. That's up from a mere 9% last year — and likely to shoot as high as 65% next year, the consultancy predicted ["In Search of ROI Measurements," Business, March 25].

It's equally clear that when ROI can be measured, the business side opens the checkbook. At Delta Air Lines, for example, this year's IT operations project budget of $160 million was bounced up to more than $200 million "because [airline executives] had a whole list of projects that would produce payback this year," said Curtis Robb, president and CEO of Delta Technology [Page One, April 15].

IT managers who have found (or created) credible ways to measure ROI recommend using clear language that highlights the benefits not in IT-speak, but in business terms. And be brief: Keep ROI reports to a single page. These managers know that "hard" ROI (spending these dollars yields this payback in that amount of time) is better than "soft" ROI (vague promises to improve productivity or customer satisfaction). And they make sure they can answer questions such as: What impact will this system have on sales? Where exactly does it save money?

Sometimes you find ROI in unexpected places. In this issue, read about how National City did that ("Beating Back Bureaucracy," page 40). The 1,200-member IT team at the Cleveland-based financial firm cut its average project turnaround time by an astonishing 45%. One key method involved reuse of software code, which turned into a very measurable ROI. On average, a single software component took 200 hours to design, at a chargeback rate of $74 per hour, or $14,800 per component. When one component was reused in eight different projects, that saved the company more than $100,000.

National City CIO Jim Hughes found a way to measure ROI clearly enough for any CFO to understand and appreciate. Have you done that yet at your company? E-mail me, and we'll write about your IT organization's triumph over big bad ROI. ▶

Quick Link For articles and resources on ROI, visit our IT Management Knowledge Center: www.computerworld.com/q?k1900

"OKAY. YOU CAN LEAVE A VOICEMAIL NOW."

PIMM FOX

IT Users: Know Thyself

THE CREATIVITY, independence and ambition that drive many corporations to success can also drive IT departments to distraction. If you have a variety of qualified people throughout your enterprise purchasing and installing software and hardware, you're going to have a hard time keeping track of all your IT assets. Add in staff turnover and it's nearly impossible.

PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at **pimm_fox@computerworld.com.**

For example, how many laptops, desktops and software packages do you have? What are the expiration dates for commonly used applications? Do you have too many or too few software licenses?

No fair using an outdated Excel spreadsheet or sending an intern with a clipboard to each department.

No, asset management software is what you're after. Why? Because it seems to work. Here's what Elizabeth Nevarez, lead asset management administrator at Reliant Energy, says it does for the Houston-based utility firm, which is in the throes of reorganizing itself to accommodate energy deregulation in Texas: "We were a victim of our own environment," she recalls. "We have four points of entry for purchasing software assets, and [we] don't have a way to track what comes in."

Reliant chose to use software from San Diego-based Peregrine Systems to scan PCs and send the information to a central repository. "Now we know where the software assets are and can track them," she says. This information helps Reliant negotiate better deals on software licenses, as Patricia Keefe noted last week on this page.

"Like many large companies, we overbuy on software," says Nevarez. "So as we retire assets or departments downsize, we can now redeploy those

Quick Link For more *Computerworld* columnists and links to archives of previous columns, head to: www.computerworld.com/q?q1000

licenses." Nevarez says the company would have trouble determining how many licenses are available without using the asset-tracking software.

Other vendors, such as Computer Associates, offer software to track IT assets, but Peregrine goes well beyond that, tracking things such as vehicles and real estate. The California Highway Patrol uses asset management software for its fleet.

At Reliant, anything connected to the network becomes part of the asset-tracking system. In addition, asset-tracking software monitors all the leased equipment — representing about 30% of Reliant's IT assets.

Asset management software makes it possible for IT personnel to combine software packages more effectively.

And finally, refreshing technology on old machines isn't necessarily cost-effective, but detailed reports on memory, processor speed and warranty life of PCs makes it easier for IT departments to select which machines to use and which to discard.

Rather than struggle for information about the purchase, installation and distribution of IT assets, let asset management software do the knowing for you. ◗

MICHAEL GARTENBERG

Prod PC Makers for *Real* Change

THIS IS ACTUALLY the second column I'm writing this month. I had been working on my original for nearly three hours and was really into it, which explains why I hadn't bothered saving my work.

Like Wile E. Coyote, the cartoon character who notices he's no longer standing on solid ground and begins to fall, I reached over to hit Save but was too late. Windows XP suddenly gave me a blue screen filled with white letters telling me there was a bad POL_CALL, and my IRQL clearly wasn't feeling well. Swearing a few epithets, I rebooted, only to blue-screen again. No problem: There's a note on the screen about rebooting in "safe mode." So I reboot.

The safe mode also blue-screens. I panic, then recall that there's an option under XP's setup that lets you access a repair console. Mumbling a few more epithets, I dig up the CD. I get as far as the message that offers to launch the console and — blue screen! At this point, I give up, find another device and start again. But the experience and frustration changed my column topic.

MICHAEL GARTENBERG is research director for the Client Access and Technologies Group at Jupiter Media Metrix in New York. Contact him at **michael.gartenberg@mindspring.com.**

The PC platform, with all its speed enhancements and evolutionary changes, remains a fundamentally unstable product. It doesn't matter if you're running some flavor of Windows, Unix, Mac OS or Linux. Every modern PC and operating system retains the flaws of its initial product design, like the urban legend about a garment vendor that sent a designer coat overseas to be copied, only to get back 10,000 coats with identical cigarette burns on the sleeve. Yes, PCs initially had to be told to save and couldn't track revisions on an 88KB floppy disk. But all that should be history by now.

Why, for example, does every program force users to save their work? (I don't consider going from CTRL-KD as the "save to" command in Wordstar to CTRL-S much of an achievement.) Why can't we build on a real-world model that says I keep everything I create by default and throw away only changes? And why can't we extend the metaphor and keep *every* revision on my 120GB hard disk?

Yet with each release, vendors add features that no one uses or cares about. (The culmination of useless features was in Microsoft Office Assistant, which was so universally reviled that Microsoft actually sent out press releases announcing the demise of Clippy, the animated paper clip, in Office XP.) Why are the default settings for applications designed to punish users who don't follow the programmers' rules?

From Day 1, the PC industry's motto can be summarized in one sentence: "Keep the customer unhappy." Why? Because happy customers don't see a need to upgrade. So, here's a little advice for IT managers:

- Deal with vendors who make changes that matter.
- Buy software that will help empower users more, not frustrate them.
- Focus on products that fix flaws in basic PC architecture, and watch what happens to your career.

The reason no one has been able to unseat Microsoft from desktop operating systems dominance is that no one has offered a fundamentally different product that actually solves some of these long-standing problems. The cigarette burns remain on the sleeves, and it's time for us to demand the innovation that will truly revitalize the computing experience. As for me, I wrote this column on my trusty PDA. But that's another column. ◗

READERS' LETTERS

Defining the CTO Title

THE USE OF THE CTO title varies more from industry to industry than from company to company ["CTO: The Not-So-Popular, Misunderstood Title Needs Defining," News, April 8]. A service company may have no application for technology other than fulfilling its business/operational support needs, so technology reporting to the CIO is appropriate. But a telecommunications operator uses technology in both its product and business/operational support; having information management report to the CTO could eliminate duplicate development and operations staff. In technology manufacturing operations, separate but equal CIO and CTO functions can be easily defined.

The CTO vs. CIO question is answered best the way all business decisions should be made: The form must meet the functional need. It's the top executive's duty to understand the company's needs in light of its industry and market position and develop appropriate job descriptions — regardless of whether *Computerworld* is able to make a one-size-fits-all definition of CTO.

Edward Branham
Tampa, Fla.

Keeping Track of Time

I ENJOYED THE article "Keeping Tabs on IT Projects" [IT Management Knowledge Center, March 18], but I disagree that you can't track non-IT time. I have been doing this since 1996 with Project Management Workbench/ABT Results Management Suite/Niku Portfolio Manager.

Charles Carroll
Program analyst
Olathe, Kan.

Plugging the Brain Drain

THE NATIONAL Academy of Public Administration's report states that the federal government invests too little in continual learning and that this failure is especially problematic in the rapidly changing world of IT ["Uncle Sam's Brain Drain," Business, March 25]. Someone needs to explain this to management. My director believes that if she gives training to her IT employees, they will leave. The federal government could easily make itself a hot employer by setting up internal IT training programs and having employees sign one-, two- or three-year contracts before enrolling.

Navar Holmes
Computer specialist
VA Medical Center
Sheridan, Wyo.

Don't Share Accounts

AT THE END of the trail in the article "Suspected Code Theft Creates a Forensic Furor" [Security Manager's Journal, April 8], the investigation leads to a pervasive and dangerous practice: shared accounts. With shared accounts, actions performed cannot be provably traced to an individual. Shared use of root accounts is especially serious because of the virtually unlimited access those accounts provide. In some industries, including pharmaceuticals, shared accounts are illegal.

Doug Picirillo
Consultant, principal
Galaxia Corp.
Arlington Heights, Ill.

You Need a Shave, Too

THE ARTICLE "User Beware: Many Vendor-Provided ROI Calculators Offer Only a Veneer of Objectivity" [IT Management Knowledge Center, March 18] reminded me of the saying, "Never ask a barber whether you need a haircut."

Gopal K. Kapur
San Ramon, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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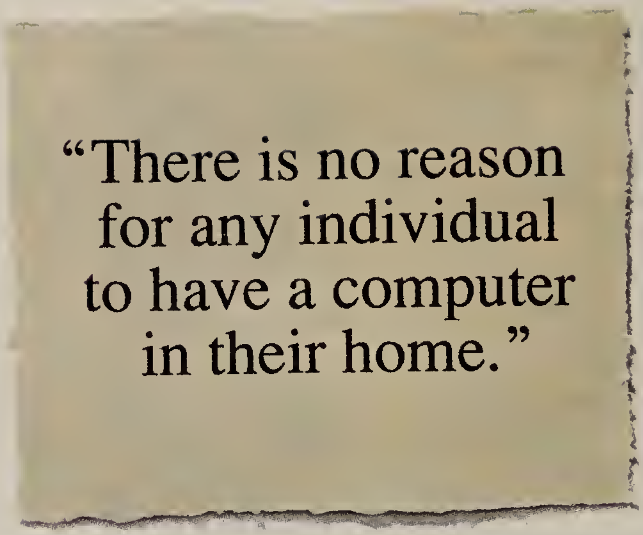
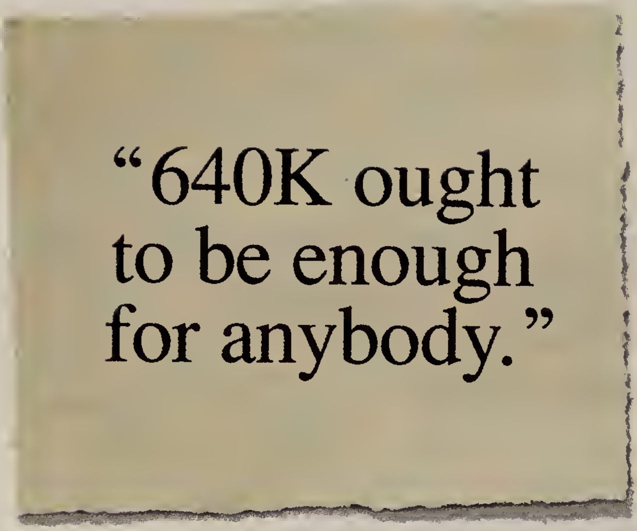


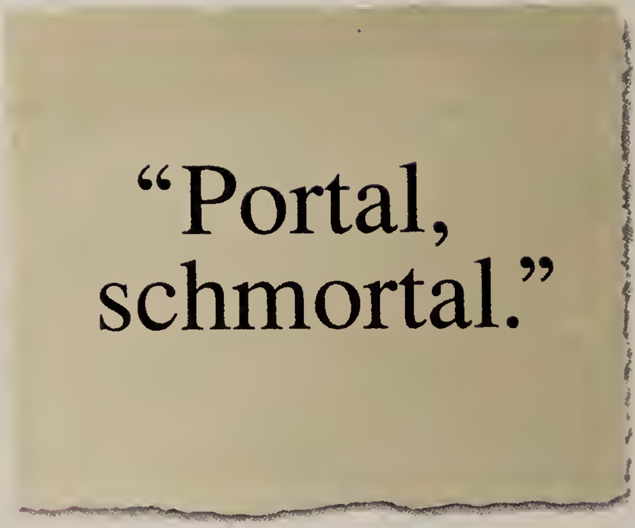
“There is no reason for any individual to have a computer in their home.”

1977



“640K ought to be enough for anybody.”

1984



“Portal, schmortal.”

2002

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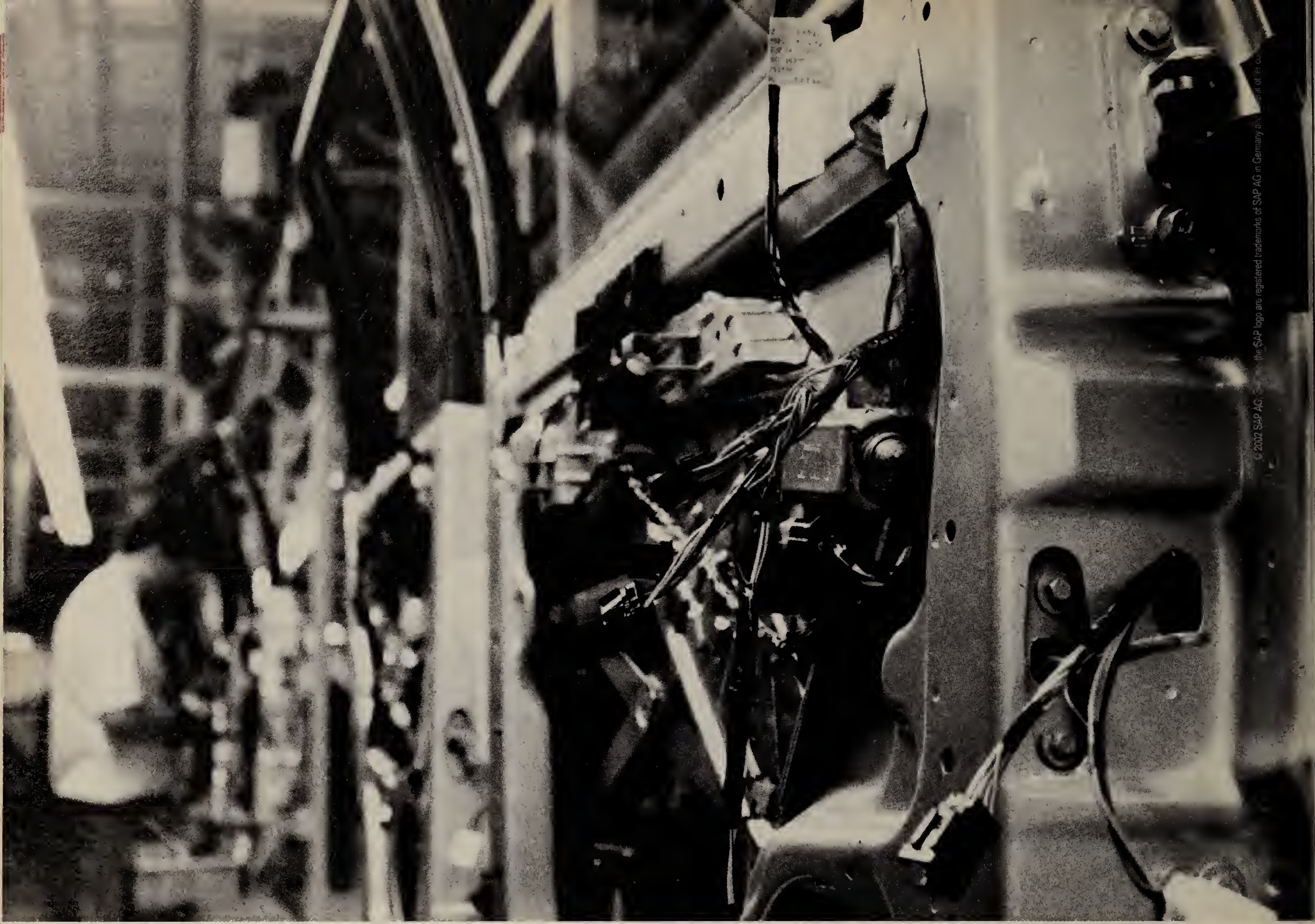

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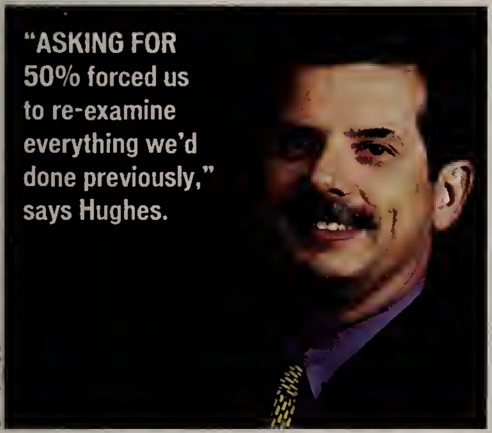
THIS WEEK

BACK TO BASICS

With the economy still foundering, some sanity has returned to project management as IT leaders emphasize stricter budget controls, daily progress reports and streamlined methodologies to keep such efforts on track and in the black. **PAGE 36**



"ASKING FOR 50% forced us to re-examine everything we'd done previously," says Hughes.

DAN SNYDER

CRAZY FOR CASH

In 2000, when National City CIO Jim Hughes (above) challenged the financial services company's 1,200 IT professionals to cut the average project time by 50%, they thought he was nuts. But guess who's laughing now. **PAGE 40**

TIMELY TOOLS

Having the right project management software can go a long way toward reducing project creep — and pay for itself along the way. **PAGE 43**

CAREER ADVISER

Fran Quittel counsels a Washington-area software engineer who's wondering how to obtain security clearances and offers pointers to an unemployed Java programmer who's concerned about taking on loans for certification training without any employment guarantees. **PAGE 44**

DAVID FOOTE

Seeding Your IT Staff

WE'RE HEARING THE WORDS *economic recovery* a lot now. It could be optimism fueled by upbeat economic indicators, or the enthusiasm of spring after the end of a restless winter. Still, real job growth traditionally trails economic growth, and economists are pointedly refusing to predict when profits might cascade into corporate budgets and allow IT to resume hiring in earnest.

That *will* happen eventually, but as any good gardener will tell you, preparing for the harvest begins long before the seeds are planted.

There's a problem, however. Months of belt-tightening and fanatically focusing on ROI, benchmarking and cost-benefit analyses have diverted IT leaders' attention from vital things they do to build effective, content workforces. These include things like spotting and nurturing leadership skills; setting vision, direction and strategies for establishing the right IT culture; and aligning and motivating people for the formidable task of delivering shareholder value. Achieving those objectives — not mindlessly following CFO dictates to reduce costs — is what successful leaders are most remembered for.

IT decision-makers need to be concerned *right now* about workforce issues in order to capitalize on bountiful times ahead. These three areas need particularly close attention:

An aggressive, well-conceived retention strategy. "You Inc.," the free-agency attitude that mocked loyalty and fueled talent bidding wars a scant few years ago, became "You Stink" when compulsive job-hoppers began to outnumber good jobs. With jobs hard to come by, workers now seem ready to settle down.

But you can't attract and retain the cream of the crop in this buyer's market with below-market pay or stingy benefits packages. And even in a rotten economy, your stars — the roughly 20% of your people you can't afford to lose — can always go elsewhere.

Building loyalty requires a thoughtful, well-executed retention strategy and a willingness to listen and continually recalibrate. Ask workers regularly for their ideas about their work and workplace; share information that had previously been held closely; give them coaching, mentoring and training; help them plan their careers; and do everything possible to build a sense of community.

Security staffing, the sleeping giant. Security is quickly ascending the CEO's short list of critical "to-do's." Many companies appear unprepared for the hiring explosion in security that I predict will begin in the first half of next year. It's not new, "niche" technical skills that are causing alarm, but the absence of experienced, business-savvy, technologically astute security professionals who are able to negotiate through political minefields to build key business alliances and confidence about security operations.

Boards of directors fear high-profile Web attacks and privacy breaches that can damage reputations and impair revenue generation. But most firms lack dedicated security departments, and their fragmented approaches to security will soon be overwhelmed by the complexity of necessary security services.

The immature infosec service provider community will offer only some relief. Executives in charge of large information security departments fret that even their budgets are too constrained to recruit expert talent and that layoffs have weakened them. The solution? A persuasive marketing campaign led by a team of IT and business unit leaders, plus outside consultants to package, "brand" and sell a security strategy to the CEO to obtain financial commitments. Then you must recruit aggressively and deftly project-manage the solution, using an extraordinary customer focus and careful, methodical approaches to mitigate risks.

The power of process. This recession has taught us that discipline and attention to process will produce results, and they're key to repeating what works. But you must document processes that produce success so they can be taught to others, and then use those processes, such as enterprise project management and balanced scorecard approaches, to build corporate culture.

Do these things today and you may come out of the recession with a far stronger workforce than you had before. Remember that you're in a position of power in a rich and hungry talent pool, but you've got to go after the resources you need now.

DAVID FOOTE is president and chief research officer at Foote Partners LLC, a management consultancy and IT workforce research firm in New Canaan, Conn. Contact him at dfoote@footepartners.com.

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Back to Basics

Hands-on, block-and-tackle management techniques are back in vogue for keeping IT projects on track and in the black. By Julia King

LEGIONS OF DOT-COMS have collapsed, companies across the U.S. are laying off workers, and the economy remains in a sinkhole.

It's against that backdrop that some sanity appears to be returning to IT project management.

Gone are the days of bottomless-pit project funding and caffeine-pumped software developers sequestered off-site and working around the clock to be first to market with a glitzy Web site.

PROJECT MANAGEMENT

Instead, experts say, economic pressures have prompted IT departments to return to traditional, hands-on "block-and-tackle" project management, with a heavy emphasis on things like strict budgeting, daily progress reports, continual user feedback and codified processes and methodologies.

"There's been a fundamental shift," says Bob Wourms, director of the IT practice at PM Solutions, a project management consulting firm in Havertown, Pa. "A couple of years ago, time to market and market share were very critical. The focus now is on what is profitable."

Experienced project leaders who have recently produced profitable projects on time and on budget attribute a good part of their success to dusting off and putting in place certain project management chestnuts, such as securing visible and active executive support for an endeavor early on. But along the way, they've also developed a few best-practice rules to keep their projects not only on track but in the black as well. Here's how they've done it.

RULE 1 Stick to the Goal, But Know When You're Done

Profitability requires you to keep projects not only on time and on budget, but also on target to deliver no less or more than what they were designed to accomplish.

This was a key challenge for Jann Davis, manager of Project Discovery, a $10 million customer service and call center initiative at PacifiCorp, a Portland, Ore.-based electric utility with 1.5 million customers.

One of the goals of the 18-month project, which involved implementing a new Web-based billing system and automating many call center activities, was for PacifiCorp's 325 call center agents to handle 80% of incoming calls in less than 20 seconds. This entailed scripting different responses that would pop up on an operator's computer screen, depending on the type of call request that came into the company's two call centers.

"The problem was keeping the team to the 80/20 rule," Davis says, noting that certain team members wanted to script responses for the rarest types of customer issues. "I had to keep pointing out the goals of the project. We didn't need a Ferrari."

Knowing when you're done is critical to keeping a project on time, on budget and on track, Davis says. But how do you do it? "I had to throw people togeth-

PACIFICORP project manager Jann Davis says the biggest challenge she faced in a recent call center initiative was keeping the team from focusing on goals that fell outside the project's scope.

ROBBIE McLARAN

er in a room constantly and have businesspeople and developers sit together to come up with, agree on and then stick to the requirements," she explains.

RULE 2

Sweat the Small Stuff

"I wouldn't characterize it as brute force, but rather as paying relentless attention to detail," says project leader Pat Freeman, describing his style of managing a $55 million, 15-month project to develop a next-generation software system for car dealerships at Dayton, Ohio-based automotive software developer The Reynolds and Reynolds Co.

Initially, Freeman's role was that of project rescuer, because the development effort was off schedule and over budget. There were also no clearly defined project management processes and procedures.

Freeman tackled the problem by instituting what he describes as "very intense" weekly reviews, during which each and every detail of any slipping task, deliverable, schedule or cost was scrutinized.

"The meetings lasted two to four hours, and we had a structured agenda every week, looking at the same series of things," he says. "We always approached issues in terms of risk and what effect they'd have on the schedule and business case" before developing solutions.

This enabled the team to focus first on higher-risk tasks that could set the project back, Freeman says. It also helped keep the project on time and on budget for its first 10 months, though a quality control issue that surfaced toward the end of that time added another four weeks to the original testing schedule.

RULE 3

Insist on a Full-Time Project Team

One of the first things Gina King did when she was tapped last year to lead a four-month software development project was to insist that any member assigned to her team be there on a full-time, dedicated basis. Otherwise, it would be impossible for members to stay committed and focused, she says.

King, an IT manager at Valassis Communications Inc., an $800 million marketing services company in Livonia, Mich., had just 16 weeks to produce a new Web-based estimating tool for a large customer that was being heavily courted by a Valassis competitor that claimed to have a similar tool near completion.

"We were in danger of losing our client, so we had to get them something quick," King recalls. With a full-time project team, the effort was completed on time and is credited with adding $1 million in annual revenue to Valassis' books.

RULE 4

Do Your Own Testing

Chuck Linebaugh, director of information systems at O'Hagan, Smith & Amundsen LLC, proved the effectiveness — and financial benefit — of a new, specialized software training course by requiring that all users at the Chicago-based law firm take and pass certification tests based on the training.

"When we started the project, we had an analogy that this [training] course is going to be like karate, and that every one of the tests a user passed is like earning another belt," Linebaugh explains. "And we wanted everyone to earn a black belt."

The content of the training course was developed based on information Linebaugh and his support staff gleaned from reviewing a year's worth of calls placed to the help desk by the firm's 100 attorneys and 150 support staffers. From users' questions, "we defined 90 things people had to know and broke these things into four core subjects," Linebaugh says.

The four subjects — Windows 2000, file management, Microsoft Word and Microsoft Outlook — then became the areas in which users were certified. Testing began in June 2000, and the law firm's managing partner was the first employee to become fully certified. By June 2001, all 250 employees had taken and passed the certification tests, which are now part of the firm's hiring process.

The training course and user certifications have yielded a return on investment of about $400,000, thanks to a drop in secretarial and other support costs. That's because more knowledgeable workers, including attorneys who now handle their own e-mail and word processing, require fewer secretaries to support them.

RULE 5

Secure a Payment Commitment Upfront

Dave Patterson is a big believer in what he describes as full transparency.

"Every project we're working on and its status is reported through the intranet," says Patterson, vice president of IT at Zurich North America, the Baltimore-based insurance arm of Zurich Financial Services. "The status of projects is all very fact-based. You're either making your dates or you're not; you're on budget or you're not; you either have an issue or you don't."

Patterson says Zurich applies the same black-and-white, fact-based thinking when it comes to paying salaries and bonuses to members of an IT project team. The bulk of each project team member's salary is based on market pay rates and the worker's competency. "But about 10% to 20% of compensation is based on whether the company makes money and whether we deliver a project as promised," Patterson says.

His other financial rule of thumb is to always get the budget and funding arrangements of a project in writing.

"At the start of every project, there is a project agreement," Patterson says. "It needs to contain the full scope of the project plans, risk analysis, costs and benefits, and it has to be signed by the business partners willing to pay for the project. From a block-and-tackle perspective, I will not allow a project to initiate if I don't have a customer who is willing to pay for it." ◗

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Beating Back Bureaucracy

National City completely reinvented the way it approaches project management and slashed its average project duration by 45%. By Kathleen Melymuka

PROJECT MANAGEMENT

WHEN CIO JIM HUGHES challenged his 1,200-member IT team at National City Corp. in the summer of 2000 to cut the average project time by 50%, they wondered whether he was crazy or just kidding.

"My jaw dropped to my knees," recalls Tony Hai, senior vice president and director of project services at the Cleveland-based financial services company. "I thought, '10%, OK. Lunatics go for 20%. How can you even think about 50%?' Once I got over the shock, I went back and said, 'You're just kidding, aren't you?' "

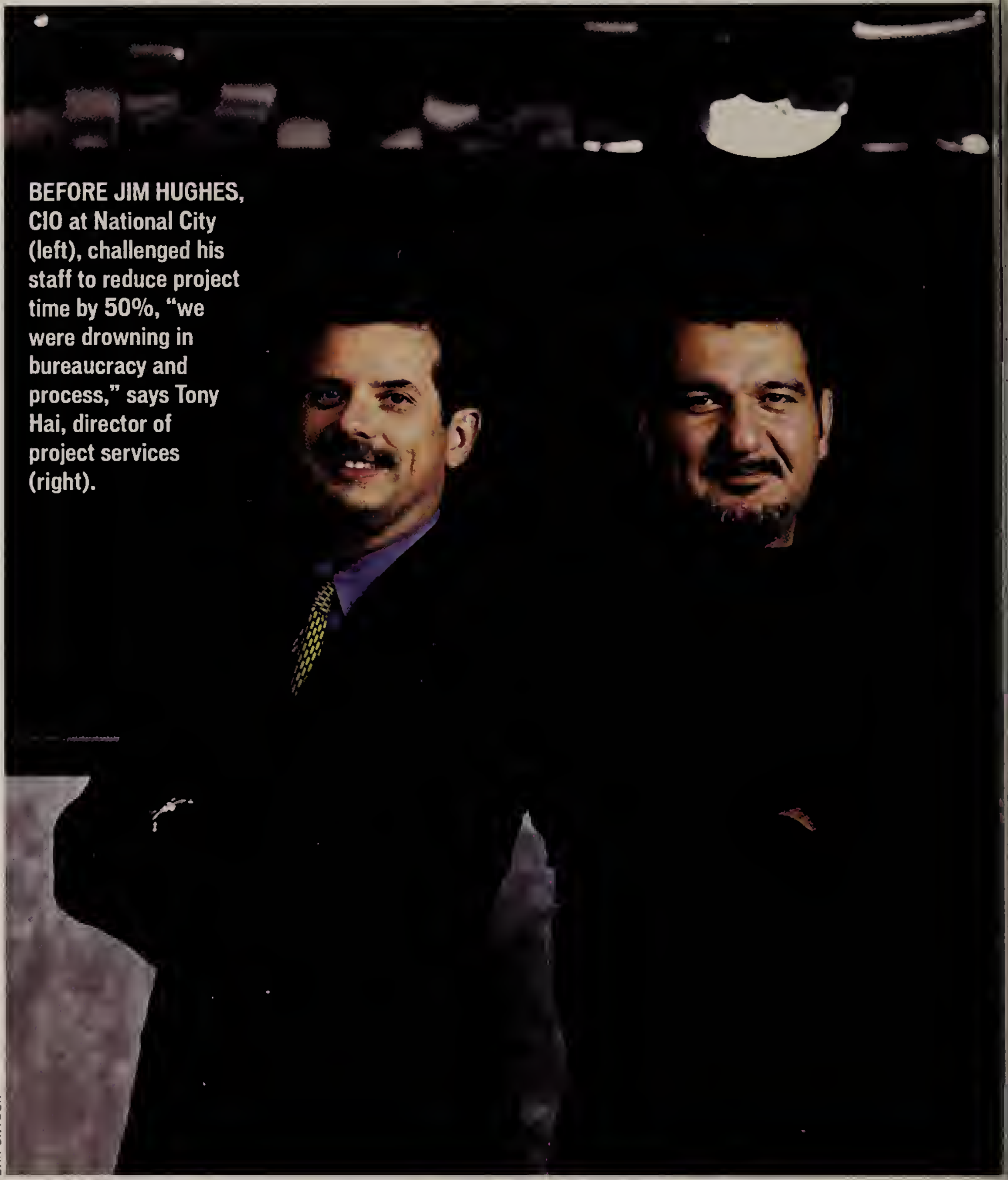
But Hughes was dead serious. He was spearheading a cultural revolution in National City's IT organization, and as part of that, he was determined to shake up the way project management was handled. Asking for an incremental improvement would only cause people to cut corners, he reasoned. "But asking for 50% forced us to re-examine everything we'd done previously and focus on reinventing all the steps," Hughes explains.

Reinvention was overdue at National City. "It was a highly siloed, highly specialized, checklist-oriented, CYA culture," Hai says. "We were drowning in bureaucracy and process."

People were overspecialized, and processes were entrenched, Hai says. "If I were to ask why this is taking so long to develop, the bottom line would be, 'We've always done it this way,' " he says.

Hughes and Hai asked IT staffers to brainstorm for the rest of the year, and the ideas began to fly. The project revolution began in January 2001, and by year's end, the staff had cut average project duration from 216 days to 120 — a 45% reduction.

This success has been cheered by business people at National City who have seen project benefits delivered sooner rather than later. "Projects delivered ahead of schedule result in business benefits being



BEFORE JIM HUGHES, CIO at National City (left), challenged his staff to reduce project time by 50%, "we were drowning in bureaucracy and process," says Tony Hai, director of project services (right).

DAN SNYDER

realized ahead of plan," says Vice Chairman William McDonald. Here's how National City did it.

Taking Risks

The most far-reaching cultural change National City had to encourage was risk-taking. "Normally, a project manager thinks of doing everything in the safest possible way," says Marty Palicka, vice president of project services. "Now we say, 'If a project plan has no risk associated with it, why don't you think about improving the project or the life cycle or the ROI by taking a risk or two?' "

But first managers identify, discuss and mitigate the risks. "People look at every task, not from a CYA perspective, but from a perspective of, 'Why am I doing this? Is it adding any value? What is the risk of my not doing this?' " Hai explains.

For example, in National City's Web group, putting any change into production used to take three days because of a very formal approval process in each support area, says Theresa Rath, Web production manager. So the Web developers and application and production support staffers who sign off on changes got together and simplified the process by identifying criteria that indicate a low-risk change.

Now, if a change meets those criteria, it can happen immediately. "We still have a formal process," Rath says, "but now it takes hours, not days."

IT is also taking risks on people. Previously, specialists were applied to each task, so projects were often delayed until an expert became available. Now, people who can do 80% of the work are assigned, and experts are consulted for the rest, so there's no waiting. Quality doesn't suffer, people find the new opportunities enriching, and National City's workforce is becoming more diversified and flexible, Hughes says.

Reusing Code

In a risk-taking culture, reuse of code is natural. "We now have a code reuse repository that we use each and every day, so we're not always going back to the drawing board," says Rath.

One component, for example, collects and validates customer information during application processes. "It took about two months to develop; to reuse it takes [only] hours, so that's a significant savings for us," Rath says, noting that the duration of some projects has been reduced by as much as 78%.

Stephane Hunsinger, vice president of application architecture, estimates that on average, reuse of a single component saves 200 hours of design, development and testing time at a chargeback rate of $74 per hour. That's about $14,800 per reuse. Last year, one component was used in eight projects, saving the company more than $100,000.

But changing to a reuse culture wasn't easy. Some people view deep technical knowledge in an application area as job security, Hai explains, and they don't want to give it up to a code repository. "They become highly territorial, highly protective of their knowledge, and sharing doesn't happen," he says.

Hai fights that mind-set by rewarding workers who share their knowledge with opportunities to do sexier, more exciting work. "That's an incentive," he says, "but it continues to be a very difficult thing to get over."

Business Benefits First

In the past, National City's project teams worked on functional requirements in descending order and implemented them all at once, says Business Director Bobbie Nehez, who manages a staff of project managers supporting the lines of business. Now, if a particular function will bring in revenue — like an online application process that will capture new customers on the spot — the project team gets that module implemented first.

"The main reason we wanted to reduce project duration was not just to say we did things faster, but to realize business benefits for clients sooner," Nehez explains. "The earlier they're in place, the more impact to the bottom line of National City."

For example, a project to calculate the time between when a check is deposited and when funds become available was scheduled for implementation in 2002. The project team realized that two modules would provide most of the business benefits. It completed those first and implemented them ahead of schedule, realizing 80% of the business benefits in 2001. "The old way, we wouldn't have had any revenue on the books from this at all last year," Nehez says.

Teamwork

Top managers across IT work together as never before, Hunsinger says. For example, when a project to move an externally hosted online banking application in-house faced a very tight and immovable deadline, every IT director offered staffers, space or services to help, she recalls. They pulled together a cross-functional IT team and beat the deadline.

"Three years ago, we would not have gotten the cross-organizational commitment needed to make that happen," Hunsinger says.

Top IT managers also participate in a "moxie review" of each new project, examining the critical path to find ways they can help speed execution. For instance, a project could end up being stalled for weeks waiting for a vendor to put in a T1 line, but during the review, the senior telecommunications manager could offer to use his influence with the vendor to be sure the line was ready on time.

Nurturing the Culture

Hughes and Hai stress that while nurturing the new culture requires constant work, it's as important to the company's success as improving processes. Previously, certain employees were considered untouchable because of their technical skills. Now everyone is assessed not just on competency and performance, but also on behavior, attitude and how well they contribute to the culture of the organization.

"Employees with low values and performance were dealt with aggressively and in most cases resulted in them leaving the organization," says Hughes. "Those with high values and low performance where given development programs or reassigned."

"We used to think if we lost certain skilled people, life would come to an end," says Hai. "Well, we've gone through those real tough conversations, and we've lost a few of those critical resources — and it didn't." ▶

Seven Steps To Speed

❶
Culture first
Process changes don't happen in a vacuum. Provide a vision and focus on the human element.

❷
Mitigated risks
Encourage risk-taking, but only after discussing benefits and minimizing negatives.

❸
Code reuse
Don't reinvent the wheel with every project. Reward people for sharing knowledge.

❹
Modular projects
Plan projects in quickly implementable chunks.

❺
Revenue-driven implementation
Build and implement revenue-producing modules first.

❻
Cross-project communication
Encourage people to talk with one another and explore possibilities for collaboration.

❼
Management help
Get top managers to pitch in and remove barriers to increase speed.

Quick Link
To find out what two project management experts think of the radical changes National City has taken in its approach to project management, go to: **www.computerworld.com/q?28831**

Hiring a Dream Team

Contracting a turnkey project team can be a great tactic, but it can turn into a nightmare.

By Kathleen Melymuka

INFORMATION TECHNOLOGY director Brent Zempel had a problem much bigger than his small staff could handle at Life Time Fitness Inc. in Eden Prairie, Minn.

The health and fitness club operator serving 100,000 members in six states was running its business on a Unix-based client/server system that was nearing capacity. But the firm projected that it would add 12 to 16 clubs over the next two years, so "the technology we were using wasn't going to be able to scale with the company's business objectives," Zempel recalls.

Zempel wanted to build a new, open system based on Java, but his seven-person IT staff was too small and too inexperienced to do the job. Instead, Zempel decided to contract an entire turnkey project team to come on-site, plan and execute the development of the new Web-based system, and teach his staff how to carry on after it left.

Zempel and his director of application development, Wesley Bertch, checked out the capabilities, depth and methodologies of three firms that claimed they could coordinate and commit an entire project team. They judged Boston-based Aquent Inc. to be the most technically credible and the best value and signed it up.

Fifteen to 20 Aquent contractors ran the project, augmented by a handful of Life Time IT staffers. Eight months later, they delivered Phase 1 on time and within budget.

The price of turnkey teams varies widely by region and services rendered, but Aquent estimates that personnel costs for an average four- to six-month project with six to 12 technicians will run from $350,000 to $1.2 million. Zempel says the Life Time project was less costly in the long term than it would have been to refurbish the old system.

Not So Fast

For the right company and the right project, this SWAT-team approach has a lot to offer, but there are also reasons you may not want to try it.

The odds against any IT project are tough, and an outside team brings additional challenges. Lucille Renaud, the Aquent manager on the Life Time project, says nailing down requirements, goal and scope — difficult under any circumstances — is much harder for outsiders who don't know the company. "You have to be very inquisitive and find the key stakeholders on the business and tech sides and make sure they approve the plan," she says.

Another problem is making sure that contractor advice — even if unpopular — is heeded by the in-house decision-makers. Otherwise, says Laurie Bennett, the Aquent team's user interface designer, "we do it their way, and when it's proven we were right, we all scramble to fix it."

In addition, "it's difficult to develop a rapport in a short time with people in the organization," explains Stan Portny, a project management expert and author of *Project Management for Dummies* (Hungry Minds Inc., 2000).

Worst of all, resentment of an outside team can derail a project. "We sensed a little resentment from some of the [IT] employees," says Craig Peterson, one of Aquent's technical project leads who worked with Life Time. "They wondered why we were brought in, why they weren't given the opportunity."

Advantages

However, turnkey project teams can also bring advantages. These include access to a broader skills pool; positive team dynamics established during previous engagements; and the ability to transfer product and project management skills, as well as systems operation, maintenance and evolutionary frameworks, to permanent staffers.

PROJECT MANAGEMENT

Zempel found that there were several make-or-break factors that he could positively influence. The first was human dynamics.

"Without the right mix of people, it could have been awful," he says. Zempel interviewed virtually every prospective team member, looking for the right personalities as well as talent. He also tried to minimize the "us vs. them" mentality by seeding the project with a handful of Life Time people.

The contractors did their part to neutralize resentment from the IT staff. "We told them we were brought in to help them be able to do this after we leave," Peterson recalls. "That helped us win them over."

Good business communications were also critical. Business people gave Bertch feedback on the project's progress and requests for revisions. Team members working in the business areas reported to Renaud. She and Bertch powwowed daily. "The project manager had great lines of communication," Bennett recalls. ▶

Hired Guns: Pros and Cons

Will a turnkey project be a dream team experience or a disaster for your company? The following checklist may help you decide:

Dream Team	Nightmare
■ Short-term project	■ Continuing initiative
■ Isolated, well-defined system	■ Highly integrated into other systems
■ Tactical focus	■ Strategic focus
■ In-house staff busy with higher-priority projects	■ In-house staff resentful of turnkey team
■ Knowledge transfer and maintenance easy	■ Knowledge transfer and maintenance complex

Tapping The Right Tools

Using the proper mix of project management software can forestall delays and cost overruns.

By Pinm Fox

Projected Returns

A rundown on how effective project management can promote improved returns on investment

Effective project management programs can . . .

- Yield an average **28%** return on investment
- Generate overall business improvements by an average of **21%**

The implementation of project management initiatives has led to improvements in . . .

Schedule estimating	38.6%
Customer satisfaction	37.6%
Alignment with business goals	37.0%
Time and budget to date	32.5%
Schedule performance	32.1%
Cost performance	23.8%
Staff productivity	22.8%
Time to market	21.7%
Average time to repair defects	11.8%

Base: 43 senior-level project managers; multiple responses allowed

SOURCE: PM SOLUTIONS, HAVERTOWN, PA

THE NUMBERS ARE frightening. Half of all IT projects fail to meet objectives, and half are delivered over budget, according to Gartner Inc. in Stamford, Conn. Meanwhile, Aberdeen Group Inc. in Boston reports that 30% of IT projects are canceled prior to completion and 90% are delivered late.

Combine these results with the $275 billion spent each year in the U.S. on some 200,000 software development projects, and it becomes evident that effective project management — and the proper tools to track these efforts — are vital to keeping these projects within scope.

At Wilmington, Del.-based Du Pont Co., project management software from Tucson, Ariz.-based Automation Centre LLC helped increase the submission rates for project time cards from 50% to 97%.

"We were always dogging engineers to do their time cards," says Ronald F. Carrick, CIO of engineering at Du Pont. "Now, they can use it for invoicing, expense reporting and resource management tied to specific projects."

Installed in January 2000, the software suite is used by engineers on-site. Because Du Pont projects are funded and managed by individual business units, project management software allows Du Pont managers to define the scope of each project, measure the units of work and track hours against project plans.

So far, about 700 engineers at Du Pont use the project management software, while an additional 1,400 to 2,000 contractors posting time cards from all over the world have access to the system.

Previously, Du Pont had built project management software for its Digital Equipment Corp. VAX environment, but it was a terrible application, recalls Carrick.

PROJECT MANAGEMENT

"People were late with time cards, project accounts were out of kilter, billing for projects submitted over time sometimes weren't valid, and there was no way to look up valid project codes," he says.

Billing accuracy is an important component of project management.

"If I have 2,000 engineers working on a project at a nylon plant, and I miss year-end hours being posted to the project because of an invalid project code — if that's a capital project, that has big tax and profit implications," says Carrick. That "could be the difference in a year's depreciation" on a project's value, he adds.

Profitable Project Tools

Indeed, sound project management includes looking under the hood at the tools used to oversee these efforts. But measuring the returns from these systems isn't always easy.

"It's a little like asking, 'What is the return on investment for your car or your house?' " says Carrick. "One way to look at the return for a necessary function is to evaluate what it would have cost for another system, for example, from SAP or PeopleSoft."

For instance, says Carrick, the total cost of ownership of Tracker Suite from Automation Centre was at least 10 times less expensive than the CATS system from SAP AG as well as the time and labor module from Pleasanton, Calif.-based PeopleSoft Inc., and it was just as functional.

According to J. Kent Crawford, CEO of PM Solutions, a Havertown, Pa.-based project management consulting firm, buying a project management tool isn't enough and usually results in failure if it isn't integrated into the culture of the company.

"Companies spend lots of time and money buying things they think will give them good project management, but they don't even bother to define what good project management is, in terms of goals," says Crawford.

Building a Case

The construction industry also relies heavily on project management tools. It needs to do so since it operates on thin profit margins (3% to 5% of revenues) and project managers must organize tight delivery schedules for multiple subcontractors.

Vanasse Hangen Brustlin Inc. (VHB), a Watertown, Mass.-based engineering, design and land development company, uses software from Foster City, Calif.-based iManage Inc. to share documents, set up project-specific Web pages and give access to geographically dispersed units working on similar projects.

"We needed to solve a problem related to our six-year project to extend the New Bedford-Fall River rail extension in southeastern Massachusetts," says Greg Bosworth, manager for IT operations at VHB.

"We work with at least 12 subconsultants extending 50 miles of commuter track, and we had to figure out a way to track design changes, invoicing and incorporate comments throughout the project," Bosworth says. "Using the notification engine, we can see who made changes to documents instead of chasing down e-mails to many different people."

Although it's still too early to judge the savings, Bosworth says that if VHB is able to save 10% of its employees' time by using the iManage software, the effort would be worth it. ◗

“Dear Career Adviser:

I’m a software engineer seeking work in the Washington area. Almost half of the available jobs require some kind of security clearance, and I don’t have this, because I’ve always worked at small, private companies. Can I get this clearance on my own? — CLASSIFIED FOR CLEARANCE

Dear Clearance:

You would be working for either a military organization, government agency or private employer that does government contract work. In such a situation, your employer, not you, obtains a security clearance, says Dick Jeffreys, director of operations and chief of staff at The Destiny Group, a San Diego-based company that assists workers with transitions out of the military.

While obtaining some security clearances might involve just a few months and a few thousand dollars, your employer might be spending more than a year and tens of thousands of dollars to allow you to do top secret work.

Your best strategy might be a two-tiered approach. Get yourself into a company that does both regular and clearance-required work, suggests Jeffreys. Start with a job that doesn’t require security clearance, and move over to the other side of the house once you get clearance.

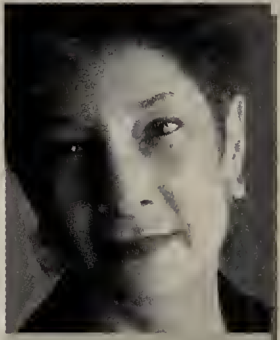
“Dear Career Adviser:

I am a Java/Java 2 Enterprise Edition programmer with two years’ experience but no job since December. A company offering training loans to IT professionals is trying to recruit me. The end result of their training is an internship and several certifications in systems, security and networking. I’m concerned about picking the school and certification, plus taking out a loan without knowing for sure about a job.

— TECH TRAINING TERRY

Dear Tech Training:

Sallie Mae, the nation’s leading provider of education funding, expects to do $250 million in IT-related career-training loan volume this year through its subsidiary SLM Financial Corp., which works with some 1,500 authorized computer training schools, says Dennis Murphy, SLM Financial’s national sales manager. Many of these loans, which range from $1,000 to $25,000, are given to career-changers entering the IT field, as well as to IT professionals who want to update their skills.



FRAN QUITTEL is an expert in high-tech careers and recruitment. Send questions to her at **www.computerworld.com/career_adviser.**

Sallie Mae loans require that you enroll in a program with both a start and an end date, and that you be creditworthy. While you can defer repayment of your loan for a charge of $10 per month for up to 12 months while you’re in training, much of the training and certification boot camps are available at night so you can work while you attend class.

But your questions about choosing a good school and employment following training are valid. Murphy advises that you check your state’s education Web site to make sure that the school you’re considering has a postsecondary license. ▶

WORKSTYLES

Down to Business At Freddie Mac

Glenn Ervin, director of systems development at Federal Home Loan Mortgage Corp. (Freddie Mac), describes an IT culture closely linked to the mortgage trading company’s business side and distinguished by abundant opportunities for employees.

What are the most critical systems supported by your department? “Our department supports the trading rooms and the back offices of the trading rooms. That includes the traders and the people who clear trades, settle trades and calculate payments.

“In my particular group, we support the back-office folks, supporting the calculation of the payment and settlement systems. Freddie Mac purchases mortgages, bundles them in securities and sells them out on Wall Street. We support that process, as well as re-securitization, where we take a group of those securities back in from another security and resell it.”

How would you describe the pace of the work? “It goes in cycles. The second half of the month is busy for one of our business areas, so my team is on its toes then.”

Sounds like you’ve got close interaction with the business side. “We don’t see our business area as customers — we see them as partners. If they’re not doing well, we’re not doing well. We are in constant contact, multiple times a day.”

How would you describe the IT culture? “The environment is very casual. We like to have fun while we’re working. The staff actually eats lunch together quite often.”

What do you like best about how career advancement and training are handled? “Last year, everybody had to take nine days of training. It was built into our evaluations. I’ve never seen that before, anywhere I’ve worked.

“There are a lot of opportunities here. I’ve been here nine years and came in as a technician. The only thing I wanted to do was enhance my programming skills. I had no plans to come down the management track at all. But I was presented with opportunities that I took advantage of, and I’m glad I did.”

What makes your IT staff unique? “One thing is how well we know the business. I have employees here who could sit down in a business seat and perform a lot of those duties around the systems we support.”

What do you love about coming to work? “I’m constantly surprised with the talent of the people we have working here, not just in IS but in the business area also. I feel like I come to school every time I come in here. I also really like how the things you learn about finance bleed into your own personal finance. When you see these financial people who do it eight or nine hours every day and you talk to them about how they invest, it gives you a good idea of what to do with your own money.”

What do you dread about coming to work? “The traffic. I come from Ashburn, Va., about 20 miles from here. It can be pretty hellacious.”

– Mary Brandel
brandels@attbi.com

Federal Home Loan Mortgage Corp.

Who they are: Mortgage trader that has financed one-sixth of all home sales in the nation since 1970.

Main location: McLean, Va.

Interviewee: Glenn Ervin, director of systems development

Number of IT employees: 1,000 in division; 130 in department; 30 on the systems development and support staff.

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TECHNOLOGY

THIS WEEK

'GRIDDING' FOR CHANGE

The next evolutionary step in distributed computing, grid technologies can aggregate idle CPU power to handle complex processing tasks. But not all applications benefit. **PAGE 48**

STORAGE MANAGEMENT

Automating storage resource management tasks makes good sense as storage networks proliferate. Policy-based tools can issue alerts, but broader capabilities are still evolving. **PAGE 52**

FUTURE WATCH

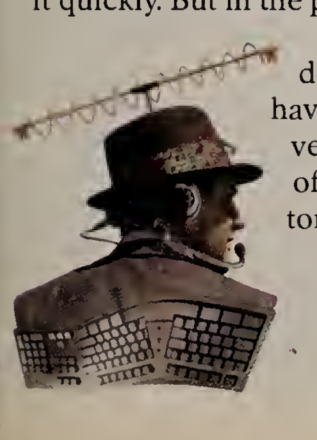
Wearable computing devices are becoming more sophisticated and more common. But they could change more than clothing styles — always-on computing may raise concerns about the erosion of work/leisure barriers. **PAGE 54**

EMERGING TECHNOLOGIES

InfiniBand will redefine the data center server by externalizing I/O subsystems connected over a fast serial network and making them independently scalable. **PAGE 56**

SECURITY JOURNAL

When a SQL Server database disappears, support staffers restore it quickly. But in the process, they destroy evidence that may have helped reveal the identity of the perpetrator. **PAGE 60**



NICHOLAS PETRELEY

A Success Plan for Sun

AN OPEN LETTER to Scott McNealy at Sun Microsystems:

I've got a few bits of advice for you, Scott, the first of which is to read this whole letter, because I saved the best for last.

My next bit of counsel is to resurrect your battle against Windows on the desktop. It's tempting to overlook the desktop in a slow economy. The battle is expensive, and there's no immediate benefit to Sun. But it will eventually pay off if you stay in the fight long enough to win.

We'll revisit the desktop in a moment, but first let's tackle how you react to Microsoft's attempts to keep you off message. Take XML, for example. Back when Microsoft found itself in hot water over Java and had no language to compete with Java, it whipped up a marketing campaign to promote XML as a technology that made Java irrelevant. Your biggest mistake was thinking that only people who measure their IQ with a tire pressure gauge would fall for this. Wake up, Scott. The only thing more dead than chivalry is critical thinking. Don't rise above these statements, and don't ignore them. Destroy them with a truth that's easy to grasp.

Here's what I'd say about Microsoft and XML: "See this pretty Microsoft Office box? That's XML. Nobody has to tell you how to open it and find the CD because it's a standard box. Well, now, that's wonderful, isn't it? But can anybody tell me how much influence this box will have on your ability to work with its contents? That's about as much influence as XML has on software. Heck, XML is important, and we're as giddy about XML as the next guy. But what do you really want to talk about, the box, or what's inside?"

If you don't like that, pick your own way of putting it. But once you have a message that works, get the media to repeat it again and again, and then repeat it some more. Trust me, it's easy. You wrap the same message in some insignificant new detail and issue a fresh press release every week. If you need a primer on how to do this effectively, read the thousands of articles and news stories that preceded the launch of Windows 95. If you don't have time to do that, here's the short course: "Windows 95 to support multimedia extensions!"

Which brings me back to the desktop. Unless you do something fast, Microsoft will use .Net to mop the floor with Java on the client side. Once again, this has nothing to do with any tangible benefit inherent in using .Net, least of all performance. If Java already runs faster than Microsoft C, then what's the point of using C# instead of Java? (See "Binaries vs. Byte-Codes" at *www.aceshardware.com/Spades/read.php?article_id=153* for benchmark results.) But people are going to go with C# because the applications look good. The stuff in my cat's litter box looks better than the Java user interface.

To beat C# and .Net, you've got to go for the glitz. Hire the best artists on the planet to make the Swing user interface so devastatingly gorgeous that programmers will rip down their posters of Vanessa Williams to make room for Swing screenshots. Make it so much to die for that people create Swing skins for every media player, X11 Window manager and most of all, for Windows. Oh, and with all due respect to Benny Goodman, I think it's high time we lose the name Swing, huh?

Now here's the secret weapon I've been saving for last. (Don't worry, I'm sure Microsoft never reads this column.) Ring up Nvidia, ATI and anyone else you can find. Convince them to modify their graphical processing chips to render as much of the Java user interface as possible in hardware, especially fonts and layout management. It would be wonderful to give the user interface lightning-fast rendering of breathtaking 3-D effects and color blending. But what you really want is to be able to choose any font and have the display card resize and rearrange every label, button, tool bar and text box flawlessly and instantaneously, no matter what operating system platform you're using.

Make the Java user interface that appealing, fast and platform-neutral, and the style will become so ubiquitous that people will forget what Windows used to look like. If you need any more tips, let me know. ◗

NICHOLAS PETRELEY is a computer consultant and author in Hayward, Calif. He can be reached at nicholas@petreley.com.

Plugging Into COMPUTING POWER GRIDS

To meet growing demands for processing power, companies are finding distributed computing systems a low-cost, scalable alternative. **BY DREW ROBB**

GRID COMPUTING has attracted a lot of attention recently as companies have begun to promote the concept of accessing unlimited computing power from anywhere in the world as easily as users now log on to the Internet. While that sounds revolutionary, it's really an incremental step with a great deal of developmental history behind it. In fact, enterprises of all types are already using a simple form of grid computing within their firewalls to economically meet processing needs.

Just as storage-area networks (SAN) virtualized enterprise storage needs, grid computing virtualizes processing power. With it, a process doesn't run on a specific assigned CPU in a particular box; rather, it goes to any available processor in the network. A small task uses a single CPU, while larger jobs are split up and run on multiple CPUs simultaneously. The jobs can be assigned using either a centralized or peer-to-peer structure. Once limited to university research clusters, grid computing is making inroads into the business community, offering supercomputer performance at PC prices.

At Montreal-based Caprion Pharmaceuticals Inc., for example, a four-CPU server needs 720 hours to analyze a single biological sample from one of Caprion's eight mass spectrometers. Mixed in with these resource-intensive computational cycles is a constant stream of smaller tasks. The company turned to grid computing to efficiently address the mix of large and small jobs on a single platform.

"Biotechnology changes so rapidly that 12 months from now, we could be doing very different kinds of computing," says Paul Kearney, director of bioinformatics. "We need a flexible computing platform that not only meets today's needs, but the future ones we don't know about yet."

If you feel confused on the subject of grid computing, you're not alone. "People envision grid computing as meaning everyone being connected planetwide," explains Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., a consulting firm that specializes in large-scale computing. "That is only part of it, and largely a future part."

Grid computing follows along the development track of technologies such as the Object Management Group's Common Object Request Broker Architecture, Microsoft Corp.'s Distributed Component Object Model (DCOM) or the Open Group's Distributed Computing Environment (DCE). More recently, the Globus Project *(www.globus.org)* has developed standards for large-scale computing over the Internet.

"Organizations have been doing grid computing for 10 years," says Stacey Quandt, an analyst at Giga Information Group Inc. in Cambridge, Mass. "People are talking about it now because of the potential global grid, but many already have grids."

Examining the Options

There are three main types of grid: cluster, campus and global. The definitions aren't set in stone. Rather, they represent rough divisions on the continuum of ways in which organizations can share computing power.

Sun Microsystems Inc. reports that of the 5,000 organizations currently using its Sun Grid Engine software, 90%, or about 4,500, use it for cluster grids, about 450 use it for campus grid installations and 50 for global grids.

Cluster grids consist of either linked servers and systems or just systems in a single location serving the same project or business unit. In addition to providing more effective use of server resources, such a cluster can also capture unused workstation CPU time for large processing cycles.

Caprion's cluster grid was installed in September in a server room built from scratch using Sun Microsystems' Sun Fire 4800, 3800 and 280R servers running Solaris 8, with a 5TB online Oracle8i database. Sun's Grid Engine distributes tasks among 76 CPUs. It can assign a single job to all of the CPUs for maximum processing speed or run many jobs simultaneously.

The cluster grid has enabled Caprion to take on a job consisting of running several large-scale experiments that will take two to three months to complete.

"We wouldn't have even considered doing those experiments if it required months of putting in a new computing platform or rearranging the hardware," says Kearney. "But the grid software has made it relatively easy to reorganize our computer farm for the job at hand."

Campus computing, which allows several projects or departments in an organization to share resources scattered across a campus, is the next step up from clusters. For example, the accounting department may tap into the personnel department's server CPUs when running a series of complex financial forecasts, or the engineering department may schedule its large jobs to run at night, using the processing power of all the company's workstations, to have the results by morning. Campus grids use the organization's network to transfer data between resources in various locations.

Setting up a campus grid introduces technical complexity because of bandwidth and delay problems, as well as organizational challenges.

"You need to take into account the social engineering, not just the technology," Quandt points out. "You're setting up an infrastructure where some departments or users take priority over others."

He also points to financial and security issues. If one department is using

WHAT IS GRID COMPUTING?

Grid, or distributed, computing is the aggregating of processing power possessed by different servers or workstations into a single resource. A single large job can be split into smaller pieces and run on several, or several thousand, computers simultaneously, producing supercomputer speed from off-the-shelf hardware.

GLOSSARY

Campus grid computing: Distributed computing across one organization, usually in one geographic location.

Clustering: A cross between parallel processing and distributed computing. Networked computers, on a local level, work together just like a parallel machine. Although the work is split across multiple computers, they behave in a parallel fashion.

Local distributed computing: Distributed computing used on a local level, generally on a local-area network. *Local* refers to an enclosed space, building or area, such as a university or an office.

another department's servers, for instance, this needs to be reflected in cost analyses. If security requirements vary among departments, policies must be set to accommodate the disparity.

Despite such challenges, some companies have operated grid computing for years. Hartford, Conn.-based Pratt & Whitney, a division of United Technologies Corp., began using distributed computing in the early 1990s to model jet engines and gas turbines. Relying on physical testing of the hardware proved to be too expensive and too slow.

"Building the hardware for a single test can run into the millions of dollars and take months," says Pete Bradley, associate fellow for high-intensity computing at Pratt & Whitney. "We switched to large-scale numerical simulations."

To boost processing power, the company installed Markham, Ontario-based Platform Computing Inc.'s Platform LSF software on 5,000 workstations and 150 servers at five locations in the U.S. and Canada. Machines are connected over 100M bit/sec. Ethernet.

The grid mainly executes simulations at night on the unused Sun workstations and desktops. A typical task is assigned to 20 to 40 processors. If there aren't enough processors available at one campus, the activity is transferred to another. Single jobs are never split between two campuses because of line delays.

The grid cut engineering time and development costs in half for jet engine compressor designs. As an added bonus, the software lets Pratt & Whitney execute thousands more simulations than before.

"Grid computing has saved us a fortune by making it unnecessary to purchase dedicated servers for this kind of work," says Bradley. "But more important, increased capacity allows us to accelerate technology development."

Some companies develop unique grid strategies. Cognigen, a Buffalo, N.Y.-based biotechnology firm, for example, uses an application developed by the University of California called NON-linear Mixed Effects Modeling (NONMEM) for analyzing pharmaceutical clinical trial results and extrapolating what the results would be on a larger population. Although NONMEM isn't designed for multithreading, Cognigen still uses Sun's Grid Engine to manage multiple jobs simultaneously, sending one job to each processor and then notifying the users when the job is done. The company estimates that this has saved each scientist four to five hours per week.

Worth It for Everyone?

Grid computing is being successfully applied in thousands of enterprises, but that doesn't mean it works for everyone. While a quick look at CPU usage statistics in most organizations reveals vast untapped computing power, it's not always possible to capture that power economically. In the end, the theoretical absolute of grid computing — using any computing resources, anywhere, anytime — isn't physically possible, nor is it necessary.

"There are lots of processors sitting around in microwave ovens and appliances that no one in their right mind would want to attempt to connect to a global grid," says Illuminata's Haff. "The efficiency of grid computing sounds good, but it doesn't make sense for most companies."

It's not worth spending the time and money setting up a grid to save a few nanoseconds on a word processing document, for instance. But on the other hand, number-crunching mega-applications, which can be split into small pieces and run in parallel, and are highly repeatable and require minimal disk I/O, are ideal for a grid setup.

In addition to biotechnology and engineering applications, grid computing is probably of most value in fields such as petroleum exploration, material sciences, crash simulations, financial market modeling, motion picture special effects and weather forecasting.

"Organizations that are using it are the same ones that 15 years ago would have been using Cray computers," says Sleeper. "By going for a distributed approach, they achieve the same power at lower cost." ◗

Robb is a freelance writer in Tujunga, Calif.

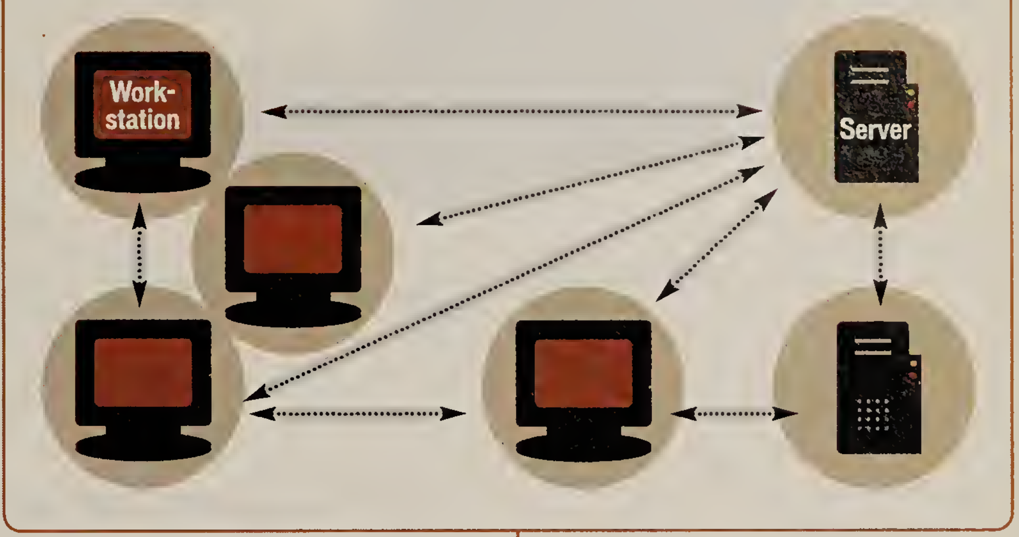
Common Object Request Broker Architecture (CORBA): A set of standards from the Object Management Group for distributed technologies and objects. CORBA is platform-neutral and quite popular. Its technology allows communication between distributed objects. CORBA's equivalents are the Open Group's DCE and Microsoft's DCOM system.

Parallel processing: A type of distributed computing that distributes the workload across multiple processors within one computer instead of distributing it across multiple computers. It provides better speed and communication than distributed computing, but it's not widely used due to the difficulty of programming for parallel machines.

DISTRIBUTED COMPUTING MODELS

Cluster Grid

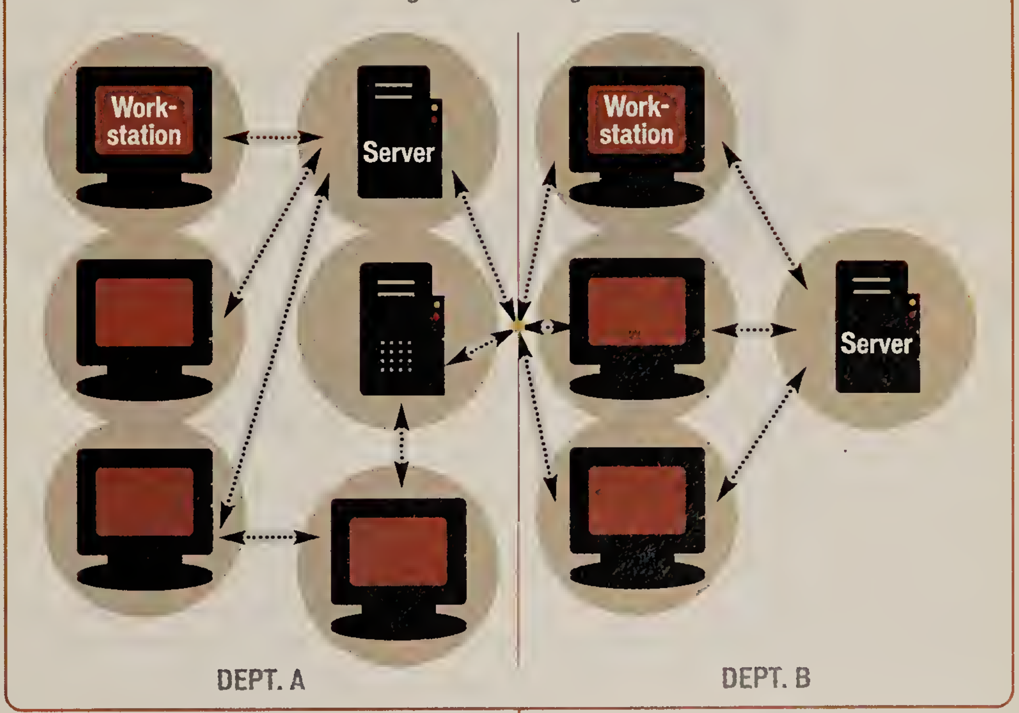
Sharing within one department or project



Cluster grids consist of linked systems in a single location serving users who are working on the same project or in the same business unit.

Campus Grid

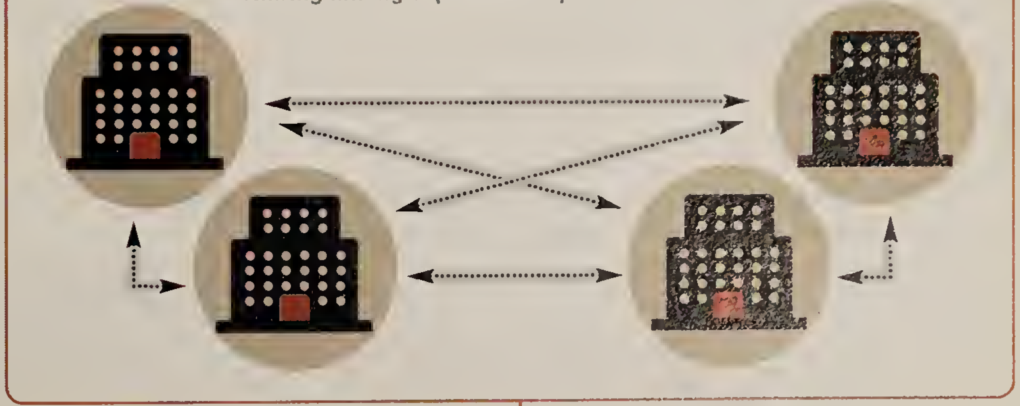
Sharing within one organization



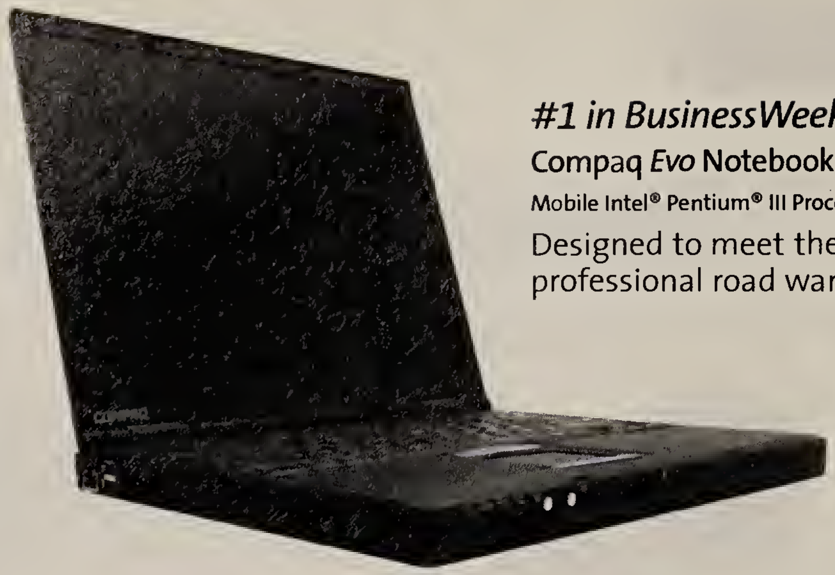
Campus grids allow several projects or departments within an organization to share resources.

Global Grid

Sharing among separate companies or individuals



Global grids connect computing resources beyond the firewall, over an extranet or the Internet.



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Intel® Pentium® III Processor 1.13GHz

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pentium III

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Storage By the Rules

Policy-based storage management is making inroads in the enterprise as new tools emerge. By Lucas Mearian

CHESAPEAKE ENERGY CORP. — one of the largest independent natural gas companies in the country — uses about two-dozen storage management policies. The policies determine what information the Oklahoma City-based firm wants to keep and where it wants to store it.

Chesapeake Energy systems engineer Jay Newton says that software from CommVault Systems Inc. in Oceanport, N.J., has allowed him to use those policies to design an automated backup scheme that reduced backup times from hours to about 20 minutes.

"All I'm doing is defining how long I want to keep something. When I set up a server for backup, I set the policy for it, and that determines how long it gets kept," Newton says, referring to the amount of time until a file is erased or ejected from the tape library used for long-term storage. "I've had this in production for nine months, and I haven't had to touch [the servers] yet."

As production-scale storage-area networks (SAN) are increasingly deployed throughout large enterprises, the resulting increase in nodes and network connections has become more unwieldy to manage manually. In response, software tools meant to automate storage resource management using policies are finding a place in the enterprise.

Known as policy-based storage management, the software offerings from industry leaders such as Veritas Software Corp., Legato Systems Inc., EMC Corp. and IBM, as well as from lesser-known start-ups, automatically allocate storage space to end users, balance the loads on servers and disk arrays, and reroute networks when systems go down — all based on policies set up by systems administrators.

For example, policy-based storage management software could monitor storage headroom, and when the volume approached a specified threshold, an automated policy would dictate that more storage be allocated from an available disk pool, avoiding server downtime.

Most current incarnations of policy-based software are used to alert administrators through e-mail or dashboardlike displays but don't automatically correct the problem, says Bill North, director of storage software research at IDC in Framingham, Mass.

To reach true policy-based storage management, North and others say the hour-to-hour, day-to-day control of storage systems must shift completely to the computer. But IT administrators aren't quite comfortable with giving up that level of control, says North. "As trust goes up, the ability to truly automate will go up as well," he says.

In December, Bell Canada International Inc. in Montreal finished rolling out a policy-based product on its 17TB SAN that automatically allocates 200MB of server space per user along with thresholds alerts and the ability to filter out improper files and generate reports.

"Once we got software installed and started generating reports, even before developing [automated] policies . . . it gave us ammo to go to the user and say, 'According to company policy, you're not allowed to have these files,' " says Steven Varin, a business analyst in the CIO's office at Bell Canada. "Once we started the [automated] policy and started finding files, we almost fell back on our butts."

What systems administrators at Bell Canada found is common, according to analysts: MP3 music files, movies and other files for personal use. They also discovered that about 50% of company-generated data on disk should have been archived on tape.

By filtering out the unwanted data, Bell Canada freed up about 3TB, or $250,000 worth, of disk space. In turn, the company brought the availability of its application servers from 85% to 99% and reduced its backup window by 10%.

"We would have had to implement another 6TB of disk space just to hold our own to get to the end of 2001. The cost of that would have been enormous — over a half-million dollars," Varin says. "I've been sleeping a lot better now."

But Raymond Paquet, an analyst at Gartner Inc. in Stamford, Conn., says he believes policy-based storage management is simply "a bunch of buzzwords strung together. The reality is, in order to have a policy-based management tool, you must first have a policy-based engine — an umbrella that goes out to take policy and implement it."

Marc Farley, an independent storage consultant, agrees, saying that storage hasn't been policy-driven but that policy engines are starting to emerge with the growth of enterprisewide SANs.

"The first products that have had it are backup and recovery products, replication products — those sorts of things for disaster tolerance and data protection," Farley says. "But I think you're going to see other products coming in that start looking at managing SANs."

Paquet criticizes automated backup policies, saying that true policy-based resource management must be connected with restore capabilities.

"Backup doesn't matter. It's utterly unimportant. We only do that because we want to perform recovery. We shouldn't have a backup policy; we should only have a recovery policy," Paquet says. "In an ideal world, I'd like to sit in front of my engine and have recovery that occurs in eight hours and with zero loss. This policy management tool should spit out what's required for that." ◗

The Benefits

Proponents say policy-based storage management can provide substantial benefits, including the following:

- **Application downtime is minimized** by setting uptime parameters.
- **Backup windows are spread out** over an extended period, with small blocks of data backed up regularly instead of everything being backed up in one long procedure.
- **Storage resources are maximized** because servers and storage arrays are automatically load-balanced to meet application demands.
- **Disparate hardware can operate** as if in a homogeneous environment.

Types of Storage Policies

EXPLICIT	**These policies are defined by users to achieve service-level objectives.** They have parameters such as RAID levels, number of mirrors or zoning requirements. Explicit policies also allow for user rankings based on the level of importance. These policies are used by the system to prioritize and select from the available resources in the storage system.
RULE	**These policies consist of an event condition action.** They're used to handle escalation, notification and activation of various processes, including the automatic execution of storage management scenarios. These policies trigger on user and system parameters. Examples of rule policies include user-defined thresholds such as file system utilization.
CONSTRAINT	**These policies express constraints on managed objects such as Fibre Channel switches, directors or storage arrays.** They may be used to tell the system what can't be done on a particular device.

Quick Link For more on Bell Canada's implementation of policy-based storage management, visit our Web site: **www.computerworld.com/q?28974**

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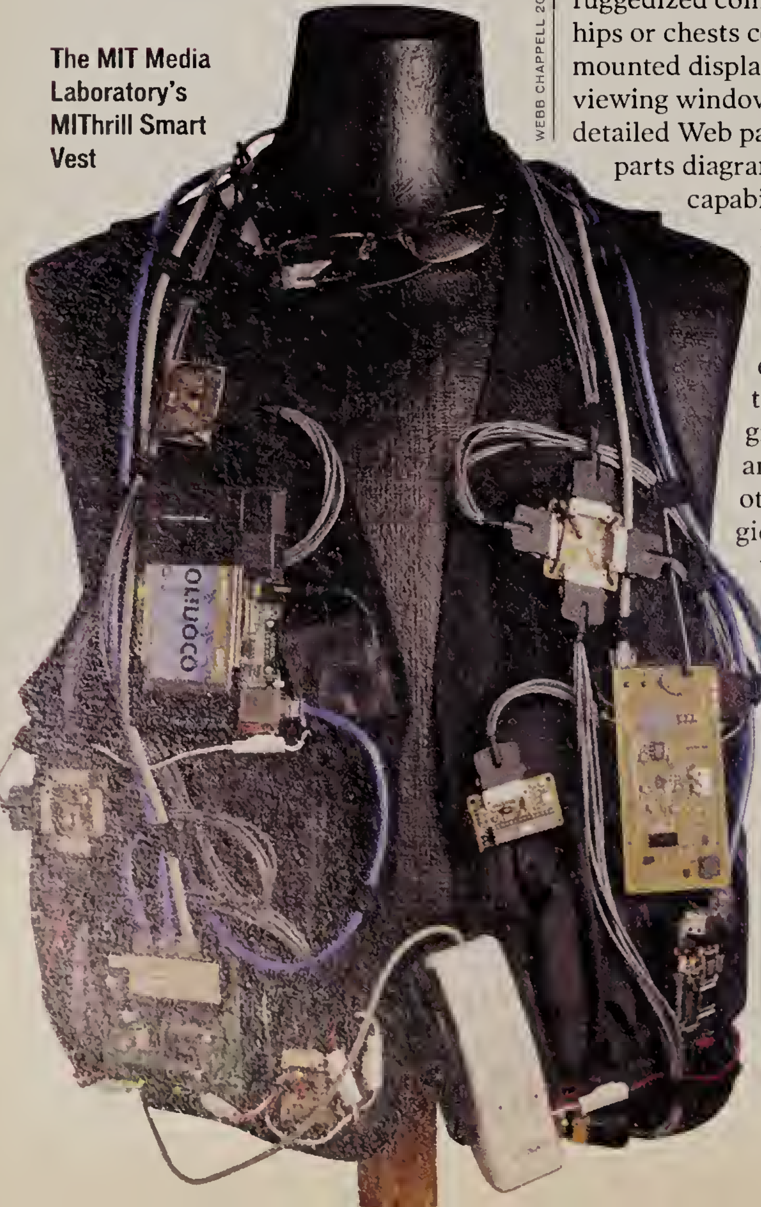
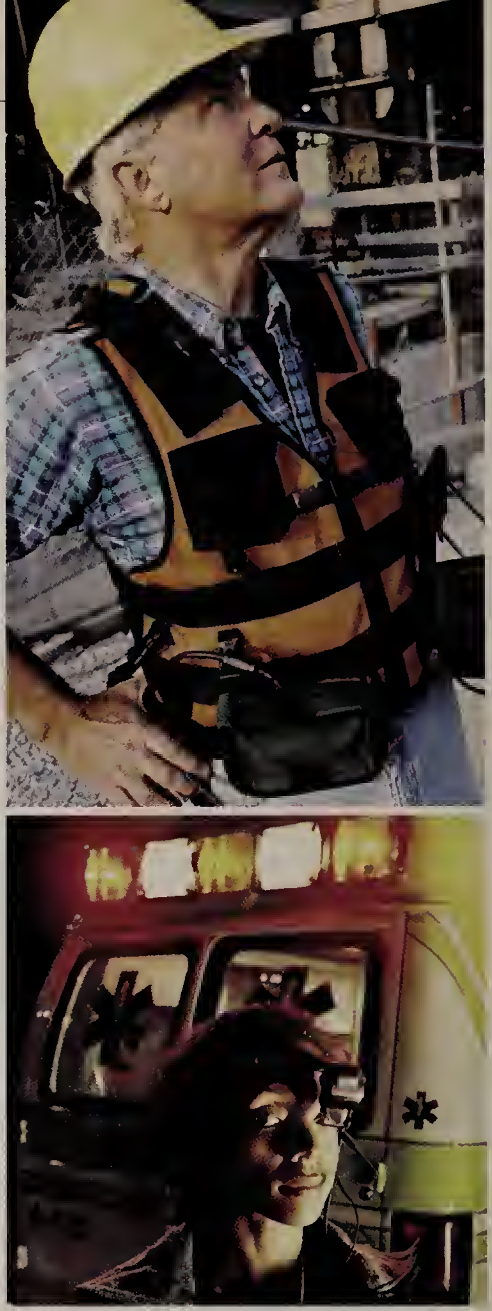
Grin and Wear It

Wearable computers will get sleeker, cheaper and more functional. But social issues will intrude. By Matt Hamblen



The MIT Media Laboratory's MIThrill Smart Vest

WEBB CHAPPELL 2001



XYBERNAUT is already selling wearable computing devices for service personnel, like the models shown above.

WEARABLE computers already play a part in our lives and will grow increasingly commonplace and sophisticated, but researchers believe we are still far from becoming a society of cyborgs.

Today, it isn't unusual to see data-capable cell phones worn on belts and attached by wires to headsets. Service technicians are beginning to wear ruggedized computers on their wrists, hips or chests connected to head-mounted displays (HMD) with small viewing windows capable of showing detailed Web pages with maps and parts diagrams. Voice recognition capability helps with data input and computing commands.

Coming generations of wearables will be enhanced by the miniaturization of parts, a greater sense of fashion and use of Bluetooth and other wireless technologies to replace the wires that connect components, some experts say. Nanotechnology will also play a role in wearables in the next 10 years, making computing and communications systems microscopic in size.

But the limits on these future wearable technologies are primarily social, some analysts believe, posing potential challenges for managers who may have to cope with workers who reject being constantly connected to data and commands.

By 2006, "the social impact of wireless and wearables — in particular, privacy issues — will be an ongoing source of concern and business opportunity," says Jackie Fenn, an analyst at Gartner Inc. in Stamford, Conn.

Gartner predicts that from 2006 to 2011, always-on wireless wearable computing and communication devices will become mainstream. About 60% of the European and U.S. populations ages 15 to 50 will wear a wireless communications/computing device at least six hours a day in 2007, and 75% will do so in 2010, Gartner says.

Addressing Style and Comfort

Researchers have no shortage of wearable computing prototypes under way. Xybernaut Corp. in Fairfax, Va., sells a wearable computer for service personnel. One model boasts a 500-MHz Celeron processor with 256MB of RAM and 5GB of storage, all worn on the belt or chest and connected to an HMD. Xybernaut spokesman Mike Binko says that users such as commuter train riders will find a sleek consumer version, such as Xybernaut's $1,499 Poma, a good way to read documents in privacy.

At Foster-Miller Inc. in Waltham, Mass., which is conducting research on wearable technology, there's an emphasis on "deconstructing" the wearable computer, says Douglas Thomson, business development manager. "Instead of having boxes spread about the body, we want to distribute the technology more by integrating components into the cloth," he says. Such integrated components could help airplane mechanics move about more easily and fit into smaller spaces, for example. And silver or gold wires woven into fabrics could make a vest or coat look fashionable.

In three years, it will be possible for the clothing itself to be a network, allowing a worker to move a component from a hip to the chest, depending on ergonomic preference, experts say. Or multifunction modules that aren't normally part of the wearable suit could be added, such as language translation or chemical detection components for public safety officers, Thomson says. Rechargeable battery belts could provide the power required by faster processors and stronger radios.

The Media Laboratory at MIT has a variety of projects involving wearable communications gear under way, including MIThrill, a "body bus" in a Smart Vest that's designed to be indistinguishable from ordinary clothing.

MIT has been selected to receive $50 million in basic research funds from the U.S. Army for the Institute of Soldier Nanotechnologies. Nanotechnology research might lead to individual clothing fibers designed to carry electrical loads and function as transistors, capacitors or power sources, says William Mullins, chief of synthesis and processing for the Research Triangle Park, N.C.-based U.S. Army Research Office.

Mullins and analysts agree that the physical implantation of devices is very far off. But in the shorter term, Gartner's Fenn worries about what will happen if office workers are so constantly connected through wearables that the work/leisure boundary is blurred. Managers might well expect workers to access data at any hour and on weekends, she says.

But, she asks, wouldn't that require the manager in turn to consider allowing the worker to shop online or do some leisure reading on a wearable device during traditional work hours? ▶

Quick Link

To read how wearable computers are helping Bell Canada's service technicians save time, visit: **www.computerworld.com/q?28604**

And for additional resources regarding wearable computers, go to: **www.computerworld.com/q?28843**

Power to the Portables

DEFINITION

Batteries convert the energy of chemical reactions into electrical energy, allowing us to use portable devices ranging from hearing aids to notebook computers to automobiles.

BY MATT HAMBLEN

IT'S SURPRISING WHAT you can make into a battery. For example, you can actually make a clock that runs on two potatoes. But when it comes to portable electronic devices, we generally stick to what we find at the local RadioShack.

Some batteries (called primary batteries) are thrown away, while others (secondary batteries) can be recharged and reused. Many devices, from flashlights to radios to some personal digital assistants (PDA), use alkaline batteries. Mercury cells power hearing aids and watches but pose a serious environmental threat. Alkaline cells once had significant mercury content, but current units use none.

The best-known rechargeable batteries are lead-acid: powerful, inexpensive, heavy and bulky — great for cars but little else. Also familiar are the rechargeable nickel-cadmium (Ni-Cad) batteries used in cell phones, handhelds, toys and portable tools. These relatively cheap cells can be recharged up to 1,500 times. Nickel metal hydride (NiMH) batteries, which are used in small mobile devices and inexpensive laptops, are environmentally safer than Ni-Cad but can be recharged only about one-third as many times.

Today, most laptops and cell phones use lithium-ion (Li-Ion) cells, which are three times as costly as NiMH cells but have high energy density. Li-Ion polymer batteries can be molded to fit inside mobile devices but are double the cost of Li-Ion cells.

Many experts feel that battery development has reached a plateau just when cheaper and more portable power sources are needed. Users would like a free, infinite power source weighing next to nothing; reality requires a removable power "brick" that can take hours to recharge batteries from a wall outlet. Devices are getting smaller, but faster CPUs and color displays drain power. So device makers are becoming increasingly reliant on software and hardware to lessen battery drain.

"Power is the big constraint today" on mobile computing, says Craig Mathias, an analyst at Farpoint Group in Ashland, Mass. Mathias says that although Moore's Law states that semiconductor processing power will double every 18 months, "a battery's effectiveness doubles every 50 years."

By fiddling with surface areas and voltages, IBM has been able to increase Li-Ion battery life for its ThinkPad X laptop from 3.8 hours to 4.6 hours.

Future Charges

IBM engineer Tom Hildner says he thinks that lithium batteries are "running out of steam" and that we need better chemistries. Many companies, including Electric Fuel Ltd. in New York, are focusing on power alternatives such as zinc-air cells. Others are trying fuel cells to power laptops, handhelds and cell phones.

While fuel cells might boost density, users would have to carry extra fuel in a cartridge. Hydrogen and methane, the most likely potential fuels, are flammable materials that aren't allowed on airplanes. Analysts say such fuel cells are years off because they're too expensive and dangerous.

One promising new technology is Li-Ion polymer phosphate, which is being promoted by Valence Technology Inc. in Austin, Texas. Called Saphion, this new battery uses environmentally friendly phosphate and promises to be half as costly as Li-Ion.

Bottom-line advice for IT shops: Give users spare laptop and cell phone batteries, plus recharging capability. Also, warn users that a device can lose data if power is lost for too long. ◗

Rechargeable Batteries

	Volts per cell	Energy density (Wh/kg)	Battery discharge rate	Battery life	Price per cell	Battery life (hours)	Battery uses
Ni-Cad	1.25	45	Moderate to high	Up to 1,500 charge/ discharge cycles	95 cents	3	Low-end: cordless phones, PDAs, handheld computers, portable hand tools, tape players and toys
NiMH	1.5	70	Moderate	Up to 500 charge/ discharge cycles	$1.50	2.4	Midlevel: cordless phones, cell phones, laptops, PDAs, handheld computers and other portable devices
Li-Ion	1.0-3.6	135	Low	Up to 1,000 charge/ discharge cycles	$4	3.2	High-end: cordless phones, cell phones, laptops, PDAs, handheld computers and other portable devices
Li-Ion polymer	1.0-3.6	135	Low	Up to 1,000 charge/ discharge cycles	$8	3.7	High-end: cell phones, laptops, PDAs, handheld computers and other portable devices
Li-Ion polymer phosphate	Not available	Not available	Low	Not available	$2-$3	3.88	Potential for backup power systems, electric vehicles, cordless power tools and mobile electronic devices

Down With Power Drain

At Research In Motion Ltd. (RIM) in Waterloo, Ontario, a maker of wireless handheld data devices, the research staff works under a sign that reads, "Have you saved your milliwatt today?" But RIM doesn't make batteries, so it focuses on device designs that "use the battery appropriately," says Ray DePaul, director of product planning.

RIM devices have become well known for their gray screens. "Color displays are terribly inefficient with batteries, so we made a decision early on not to [use one]," DePaul says. To save power, RIM devices turn off their screens automatically when users put them in their belt holsters.

The biggest battery drainer is wireless transmissions. RIM has set up its messaging software so that when you reply to a message, you don't need to send all the history back again. And patented compression technology allows RIM to trim a 5KB message to 2KB.

The result is that the RIM BlackBerry 950 uses a single AA alkaline battery that will last about three weeks under constant use, a feature that delights most users. The larger RIM BlackBerry 957 works on a rechargeable Li-Ion battery, which is usually recharged during PC synchronization. That charge lasts well over a week under constant use, RIM claims.

– Matt Hamblen

Quick Link For a discussion of battery "memory," visit *Computerworld.com* at www.computerworld.com/q?28738

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Beating Server I/O Bottlenecks

OUTLOOK: InfiniBand high-speed server I/O technology will move data center servers toward separate, highly scalable processor and I/O subsystems.

By Lucas Mearian

As SERVER processor speeds push the 2-GHz mark and enterprises look to Web-enable applications that require greater server bandwidth, network administrators are running into I/O bottlenecks created by the current Peripheral Component Interconnect (PCI) bus.

Enter InfiniBand. This emerging server I/O specification promises to widen the pipeline between clustered servers by replacing current 1GB/sec. PCI-X and Gigabit Ethernet technologies with an external, switched serial I/O fabric that supports data rates of 2.5G to 10G bit/sec. (and eventually 30G bit/sec.) in each direction.

Unlike the PCI busmaster design, InfiniBand will allow multiple concurrent links between devices, increasing throughput. And it will support high-speed interconnection with external target devices, such as RAID storage, up to one kilometer away. InfiniBand will also let network administrators separate servers from storage and other I/O devices in order to scale those resources separately over a low-latency, switched network spanning the data center.

Physically, InfiniBand is a simple parallel connection. The more copper wires (up to 48), the higher bandwidth you get, says John Enck, an analyst at Gartner Inc. in Stamford, Conn. [QuickStudy, October 23, 2000]. InfiniBand's initial design, similar in topology to Fibre Channel, will connect host channel adapters (HCA) in servers to devices with embedded target channel adapters by way of intermediate InfiniBand switches.

The technology will first appear in Intel-based server designs but should migrate into midrange and high-end systems. Vendors plan InfiniBand products that will link directly into a server's CPU and memory subsystems, but development of such servers is behind schedule, Enck says.

The first InfiniBand products, due later this year, will be HCAs that plug into existing PCI and PCI-X slots. They will allow multiple connections and separate scaling of resources, but gains will be limited until new designs arrive in 2003 or 2004.

Fitting In

How will InfiniBand affect the data center? It will likely extend, not replace, existing interconnects. "You'll have InfiniBand going out of servers [and] into a gateway device that will then come out Fibre Channel or Gigabit Ethernet or some other connectivity into the network, into the storage-area network or the network-attached storage," Enck says.

InfiniBand will likely be used in densely clustered blade-server racks, says Vernon Turner, an analyst at IDC in Framingham, Mass.

Some early adopters are already planning for InfiniBand. Nathan McQueen, streaming media systems architect at the University of Washington in Seattle, needs plenty of bandwidth as he prepares to open the institution's archives to other universities and the California state government. McQueen hopes to use five to 10 InfiniBand gateway switches to let his DB2 database and Web servers access shared Fibre Channel-attached storage. Within a year, he anticipates Internet sharing of 1 million to 2 million records per year.

McQueen says he believes he'll have easier configuration and greater speed and scalability with InfiniBand than with a Fibre Channel network.

Enck says InfiniBand will benefit applications such as McQueen's because it enables more powerful I/O connectivity for small-profile servers. "That's where the value proposition is strongest," he says. ◗

Quick Link To read more about InfiniBand, including an interview with InfiniBand Trade Association Co-Chairman Tom Bradicich, visit our Web site: **www.computerworld.com/q?a1830**

■ AT A GLANCE

InfiniBand

WHAT IS IT?
A PCI successor, this scalable, high-speed switched network connects clustered servers and I/O devices.

WHAT'S THE BENEFIT?
Servers, storage and other I/O devices can be physically separated. Supports speeds of 2.5G to 30G bit/sec.

AVAILABILITY
Host bus adapters for existing PCI rackable servers are due late this year; onboard designs in 2003 or 2004.

BEST APPLICATIONS
InfiniBand will speed compute-intensive applications, such as transactional databases, and storage-intensive applications.

CAVEATS
InfiniBand adapters for existing servers and storage devices offer improved scalability, but performance gains will be limited.

■ TECH SPECS

I/O Evolution in the Data Center

	PCI	PCI-X*	INFINIBAND
MAXIMUM I/O PERFORMANCE	500MB/sec.	1GB/sec.	500MB/sec. per two-wire link (250MB/sec. each way); up to 6GB/sec. on 12 links
LATENCY	High	High	Very low
SCALABILITY	Limited to available internal slots	Limited to available internal slots	Extends outside the server box; up to 64,000 devices per subnet
BEST APPLICATION	Legacy PCI bus	Faster version of the PCI parallel bus architecture	High-speed serial bus architecture designed for external I/O connectivity

*NOTE: THE RECENTLY ANNOUNCED PCI-X 2.0 SPECIFICATION WILL RUN AT 2GB/SEC

■ PRODUCT PIPELINE

The (Infini-) Bandwagon

More than 200 vendors say they support InfiniBand, but few have announced product plans. InfiniBand won't work with servers alone; the architecture includes switches, server host bus adapters (HBA) and target bus adapters for I/O devices such as storage server arrays. In addition, gateway devices may be required to connect systems to non-InfiniBand resources.

SERVERS
Later this year, vendors including Dell Computer Corp., Compaq Computer Corp. and IBM plan to offer add-in InfiniBand HBAs for some PCI-based rack server lines. Onboard designs are due in 2003 or 2004. Blade servers with high-speed InfiniBand backplanes are also likely to emerge at that time. IBM says it plans to migrate the technology into its midrange and high-end systems.

HOST BUS ADAPTERS
InfiniBand HBAs can retrofit existing server clusters. Key players include Intel Corp., IBM and Mellanox Technologies Inc. in Santa Clara, Calif.

SWITCHES AND GATEWAYS
The first switches will come from start-ups like InfiniSwitch Corp. in Westboro, Mass., as well as from established Fibre Channel vendors like Brocade Communications Systems Inc. in San Jose and Qlogic Corp. in Aliso Viejo, Calif. Start-ups Voltaire Inc. in Bedford, Mass., and Omegaband Inc. in Austin, Texas, provide Internet Protocol network gateways.

MANAGEMENT SOFTWARE
InfiniBand won't work without management software for the network fabric. Lane 15 Software and VIEO Inc., both in Austin, are the primary developers.

TARGET DEVICES
The first InfiniBand storage devices may come from Hopkinton, Mass.-based EMC Corp., Tokyo-based Fujitsu Ltd. and IBM.

– Robert L. Mitchell

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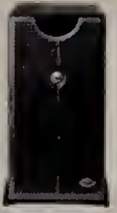

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Database Wipeout Turns Into Unsolved Mystery

In making a hasty recovery after a SQL Server data loss, staffers may have overwritten critical evidence

BY VINCE TUESDAY

SECURITY MANAGER'S JOURNAL

ONE NIGHT last week, I was rushing to get home at a decent time when the head of our software support team slipped me a note suggesting that I look into an issue with data loss on one of our production database servers. I was tempted to just leave it until the next day, but I decided to investigate right away to obtain the highest-quality data from the fresh crime scene.

I quickly discovered that there was little hope of preserving evidence. The data had been deleted six hours before my arrival. During that time, the support team had run a partial investigation, but like any support group, the staffers had focused primarily on diagnosing the cause of the loss and restoring service. While they succeeded in restoring service, their work had made evidence preservation impossible.

Pieces of the Puzzle

The problem was that all of the tables within the database had been dropped and then re-created in a 10-second period. This erased all of the data in the database, including financial data that must, by law, be kept for seven years. The very quick deletion pointed to a script-based attack rather than a manual one.

The support team had found a prime suspect — the install scripts for the software that uses the database. They drop and re-create tables in the same order in which they had been deleted. But who had run the script?

Our preferred response to a possible system compromise is to pull the plug and image the disk. After a few weeks of careful analysis, we wipe the disks and reinstall. When something goes wrong on a production system, we must leave it running for as long as possible, until we have compelling evidence that something awful is happening. By waiting while we trample all over the crime scene with our tools, we reduce the amount and quality of the evidence we collect. Unfortunately, that's the trade-off we have to make.

If we can't stop the machine, our first instinct is to gather the ephemeral digital footprints of the intruder. These usually involve system properties that don't get logged because they change too often, but if we can capture them quickly, they can easily point our investigation in the right direction. Details like TCP connection status or recently opened documents can tell us what has been happening on a system and who's connected.

Running Windows' Netstat utility showed that only the investigating support team was currently connected to the machine. The security log was empty. The system wasn't monitored by our host-based intrusion-detection system, as the administrators had felt the performance overhead of logging would outweigh the risk of any incident.

The system was running in a locked machine room, which nobody had entered, so the closed-circuit television wasn't going to show us who had caused the data loss.

However, as in many environments, lack of physical access doesn't imply that nobody can access the machine. A review of the enabled remote access methods showed that Birkerod, Denmark-based Danware Data A/S's NetOp remote control software was enabled, as were Microsoft Corp.'s Systems Management Server (SMS) and Windows NT Server 4 Terminal Server Edition connections. (Our company has tried to define a standard for remote access to servers for support, but each support team has a preferred method.)

Just because the formal security logging isn't enabled, however, doesn't mean that a system doesn't have evidence on its disks. This system had more than 300KB of text log files that had been updated since its last reboot that morning.

The lost data was still stored on a second machine. The backup had been designed to protect us from hardware errors, but it helped with this incident as well. After ensuring that all the logs had been secured, I called it a night.

Incompetence Produces Results

I'm sure there are high-tech ways to crunch such data, but given the number of logs and the strange formats involved, I used the low-tech approach: I printed it all out and read it, line by line.

The SMS log showed two log-ins, one using SMS and another using Terminal Server, but it had no record of an associated user name. By looking for all events that had happened at the same time as these log-ins, I chanced upon a useful error log generated by our Patrol performance monitoring software from Houston-based BMC Software Inc. This log contained the results of the software's attempts to install desktop icons for each user who had connected.

The software had been improperly installed under a normal user account, so it lacked privileges to access users' desktops. Every time someone logged in, it recorded a log entry saying "Patrol install user DOMAIN\BOB doesn't have privileges to write to user DOMAIN\FRED desktop." In so doing, it gave me the exact times and user names for everyone who had logged in. Patrol logging also highlighted that a third log-in had occurred — this one via NetOp.

Our investigation tracked down the circumstances of the log-ins: An operator had logged in overnight to do normal quality assurance; a database administrator had checked for performance issues midmorning; and the support team logged in eight minutes after the incident to respond to the errors that the missing data caused.

Without a log-in at the time of the erasure, it looked like the script might have been run remotely by SQL Server. For ease of central deployment, the script had been written to take a host name and deploy remotely onto that node. Without a timely dump of network connection information or SQL logs, we had reached a dead end. We chalked the event up to a mistyped host name on an installer rather than to malicious behavior.

SECURITYFIRST-AIDKIT

After our mysterious database crash, we issued a "first-aid kit" to our software support team as a way to protect evidence during future incidents. We stitched the following components together into a single script that the staff can run:

www.foundstone.com/knowledge/free_tools.html: Fport, free from Mission Viejo, Calif.-based Foundstone Inc., identifies which applications are listening on which ports. Fport is a great way to uncover Trojan horses installed on your system.

www.sysinternals.com/ntw2k/freeware/psloggedon.shtml: PS-LoggedOn, an applet available free from Austin, Texas-based SysInternals LLC, provides a comprehensive listing of who's logged on to a Windows NT system at a given time.

www.microsoft.com: Microsoft includes the Netstat utility with its Windows and .Net operating systems. We use it to list all ports and systems engaged in communication with a Windows NT server.

Epilogue

The system administrators still wouldn't accept additional logging, but we did manage to train them on incident handling — how to avoid destroying evidence and when to call us. We also deployed a "first-aid" package of programs (LoggedOn, Fport and Netstat) and wrapped them in a script that staffers can run to notify security and send us data that would otherwise be lost.

We also raised security awareness in the support staff and found a new way to track log-ins, via the the broken Patrol install. Every time broken systems help me do my job better, it brings a smile to my face. ◗

Quick Link

Discuss this week's column and catch up on the latest security developments online at:
www.computerworld.com/q?q2000

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com or go to the Security Manager's Journal forum.

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Programmer Analysts/Network Engineers/Software Engineers (all multiple positions) sought by computer s/w consultancy firm in Yardley, PA. Must have Bach in Comp Sci., Engg or equiv and one yr relevant exp. Respond to: HR Dept., Global Systems Technologies, Inc., 109 Floral Vale Blvd., Yardley, PA 19067.

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QA Analyst, wanted by IT company in Ohio. Must have Bachelors Degree in Engineering or Science besides two years of experience in analyzing and performing software quality assurance of applications using SQA Suite, Winner, Load Runner, Test Director and Silk Tools for Unix, Sun-Solaris, and Windows 95/98/2000/NT environment; analyze user requirements and implement test procedures; writing test Scripts and performing QA with different test cases; User Interface, Regression, Back-end, Database testing and Documenting Errors; Communicate and create periodical status reports; Perform queries to check the Database; performed QA for compatibility of various browsers.

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SYSTEMS ANALYST: Responsible for systems development & production support. Work experience in the following Information Technologies: Mainframe Based Applications, Altamira Banking Software, CICS, MVS, TSO, ISPF, DB2, PACE, COBOL, RPG400, SAFE, JCL, VSAM organization, analysis, design & structured programming methodology. All modules of Abanks front desk System and SIMM Information Banking system. Experience redesigning & programming General Ledger applications from Mainframe to AS/400 using Cobol400 and RPG400. Ability to work on all phases of application development from gathering & analyzing user requests up to deploy in production.Min. 4 yrs exp. in job oftered. Competitive salary, F/T, Mon-Fri (may require evening & weekends), must be willing to travel & relocated as necessary, position available in Ft. Lauderdale, FL. Monica de los Riosat Softtek: 2900 University Drive, Coral Springs, FL 33065

DIRECTOR OF TECHNOLOGY-Interior Construction Company seeks Director of Technology with the following responsibilities: Oversee a network of 100 workstations, 15 servers & a tech. staff of 2 programmer analysts & 5 network technicians; design & build construction information system & integrate w/existing legacy accounting system; integrate existing construction technology with AIA standard processes to streamline the work processes. Successful candidate will have a Bachelor's degree in Computer Science or Civil Engineering, & 1 y exp. in job duties or 1 yr. exp. as Civil Engineer. Experience in DB programming, Drywall technologies & processes & NT networks a must. Mail resume to Component Assembly Systems, 620 Fifth Ave., Pelham, NY 10803, Attn: John Rapaport.

Senior Mechanical CAD Integration Software Development Engineer to design, program, document, and test interfaces for third party mechanical Computer Aided Design ("CAD") engineering design systems including Pro/Engineer, Solidworks, and AutoCAD on Unix and Windows NT operating systems. Analyze existing legacy database management and file processing systems for electronic mechanical CAD engineering document storage and control, and provide design and feasibility analysis for enhancing and upgrading systems utilizing C++ programming language and other software development tools. Analyze and propose changes to mechanical CAD software integrations to improve overall system reliability and throughput. Review software developed to ensure compliance with functional and technical specifications. Create and maintain unit level automation regression test systems for software code developed. Develop and implement software test plans, prepare test standards and procedures for performing mechanical and automated test programs. Perform analysis and document test results for mechanical CAD integrations and other general integration tools. Provide technical guidance and support on mechanical CAD design engineering to software developers and quality assurance engineers. Requirements: Master Degree in Mechanical Engineering and one (1) year experience in job offered or one (1) year experience in mechanical engineering research and development. Candidate must also possess demonstrated expertise designing mechanical systems using Pro/Engineer, Solidworks, and AutoCAD; demonstrated expertise utilizing mechanical design systems running on Unix and Windows NT operating systems; and, demonstrated expertise utilizing mechanical design systems to write software interfaces using C++ programming language (experience gained during graduate studies acceptable). 40+ hours/week, 8:00AM to 5:00PM, $85,000/year. Submit two (2) copies of resume to Case #20012162, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114. Must have proof of legal authority to work permanently in the U.S.

Wild Tangent, Inc. seeks Sr. S/W Engnr for Bellevue Office. DESC: Dsgn, dev & impl compressed & streaming RT digital video & 3D multimedia computer graphics & animation app's util C/C++, DirectX, COM, Java & scripting languages to run on multiple platforms, incl Win based O/S. Execute & apply current rsrch math models for compression, image processing & 3D graphics. REO: BS in Engnr, CS, Math or Phys + 3 yrs of exp dsgning, deving & impling RT computer graphics & animation app's util C/C++, DirectX, COM, & scripting languages to run on Win based O/S, & 1 yr of exp dsgning & deving math models for compression, image processing, digital video & 3D graphics. Pls send resume to WT-101 Wild Tangent, 18578 NE 67th Ct; Build 5, Redmond E. Office Complex. Bellevue, WA, 98052. Job# required.

World Wide Automotive, Inc. is looking for exp. Sr. Business Analyst Programmer. Strategic design, development & implementation of financial systems for automation of business processes using MFG/PRO. 70% travel. Req. Bach. deg. in Business Admin., Comp. Sci. or rel. field. 3 yrs. exp. in job offered or 3 yrs exp. in developing bus. proc. automation s/w in MFG/PRO. Please send resume to: www.wwarecruiting.com.

Senior Mechanical CAD Integration Ouality Assurance Engineer to perform tests for integrations of third party mechanical CAD engineering systems including Pro/Engineer, Solidworks, and AutoCAD on Unix and Windows NT operating systems. Analyze related documentation, software designs, and software code. Analyze existing legacy database management and file processing systems developed using C++ for electronic mechanical CAD engineering document storage and control, and provide recommendations for improvement particularly those to support mechanical CAD integrations. Develop and implement software test plans, prepare test standards and procedures for performing mechanical and automated test programs, and perform analysis and document test results for mechanical CAD integrations and other general integration tools. Analyze and propose modifications to mechanical CAD software integrations to improve overall system reliability and throughput. Review software developed to ensure compliance with functional and technical specifications. Create and maintain unit level automation regression test systems for software code developed. Provide technical support and guidance on mechanical CAD design engineering to software developers and quality assurance engineers. Requirements: Master Degree in Mechanical Engineering and two (2) years experience in job offered or two (2) years experience in mechanical engineering research and development. Candidate must also possess demonstrated expertise designing mechanical systems using Pro/Engineer and Solidworks; demonstrated expertise utilizing mechanical design systems running on Unix and Windows NT operating systems; and, demonstrated expertise utilizing mechanical design systems developed using C++ programming language (experience gained during graduate school acceptable). 40+ hours/week, 8:00AM to 5:00PM, $75,000/year. Submit two (2) copies of resume to Case #20012083, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114. Must have proof of legal authority to work permanently in the U.S.

Net/Programmer/Analyst II
Provide functional and technical expertise for enhancements and for maintenance of existing functionality of the NET/Leshner applications, including design, development of programs specifications, code writing, testing and implementation. Develop function and program specifications, write RPG code, test, implement support, and maintain applications enhancements. Assess requirements and translate them into code. Candidates must have a Master's or equivalent in Computer Science, MIS, Engineering, or related field & 3 yrs of relevant progressive professional experience in the above stated areas. Please forward resume to Mr. Onyeka N. Nchege, Director of Mid Range Applications, Pillowtex Corporation, One Lake Circle Dr. Kannapolis, NC 28081.

Programmer/Analyst, Columbia, MD. Analyze, design, implement & test e-business applications & project full life cycle; develop engine track protal using content management software tools & develop web-based solutions for warranty groups. Work w/Java technology. Oracle, VB, Apache, Rational Rose, scripting Tcl, HTML, & SOL Server. Reqd: B.S.C.S. & 2 yrs. exp. Freq. Reloc. within U.S. may be necessary. M-F, 40 hrs/wk, 9am-5pm. Send resume to J. Brigham, HR #777, TEK Systems, 6992 Columbia Gateway Drive, Columbia, MD 21046.

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Multiple openings available for Prog/Sys Analysts, DBA's, Sys/Admin and S/W Engineers to design/develop S/W appls using some of the following - Cobol, CICS, DB2; Java, PowerBuilder, HTML, XML; data warehousing, cognos; wireless/web technologies; C++, VB, Oracle, Developer 2000, SAP, ABAP/4; Oracle/Sybase/Informix database admin; Unix/NT system admin; IBM Net.Commerce, MQSeries, Websphere; BS/MS or equivalent in CS, Engg, Science, Math or Bus Admin required. Salary: $70-90K full time. Travel/relocation involved. Resumes to: HR, Smartsoft International 4898 South Old Peachtree Road, Suite 200, Norcross, GA 30071.

Software Engineer Washington, DC Require experience in design and development of applications in ColdFusion, SOL Server, Visual Basic, C++, Oracle. Attractive compensation package. Send resume by fax only to Votenet Solutions Inc. at (775) 201-7279

Systems Engineer wanted by info technology co in NYC. Provide tech support; install and maint client systems and netwrks. Sun Solaris, Veritas products, Oracle, PL/SOL, Unix. Resume to Enterprise 24x7 Inc., 292 Fifth Ave, 4th Fl, NY, NY 10001.

Systems Engineer: Will perform LIM measurements & automatic macro defect detection on company microchip wafer inspection system and sorters. Will work at client sites throughout US. All resumes should be faxed to: Attn: L. Guidone, 203-230-0305, Microtronic, Inc. 4 Charlesgate East, Ste. 801, Boston, MA 02215

BrightStar is searching for SAP Analysts/Consultants for Siebel, Basis, Sales, Distribution, HR, or Payroll projects. Send resumes to: BrightStar, 4900 Hopyard Rd., Suite 200, Pleasanton, CA 94588, Attn: HR; or e-mail to jobs@brightstar.com.

DATA PROCESSING & TELECOMMUNICATIONS PROF: Including Project Leaders, A/P & Systems Analysts specficially w/SAP, JAVA, CDMA, GSM wireless telecommunications exp. to work in consulting environment. Fax to 818 502 3311 or email to losangeles@abraxas.com

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Senior Software Engineer wanted in Naples, FL. Research, design and write computer software for business decision support applying techniques of software engineering and mathematical analysis for SAP Systems. Designs Data Models and develops data warehouses, database applications using SAP R/3 and BW. Requires Masters degree in Computer Science/Computer Engineering or related field and 3 years progressive experience in SAP Business Warehouse. Send resumes to: HR Dept., Timaska Consulting, 215 Sunbelt Circle, Sanford, FL 32771.

Programer/Analyst: Design and develop database applications using ERWIN, SOL/PL/SOL, PeopleSoft HRMS and financials as well as Oracle tools (forms, reports and graphics). Test applications for quality assurance. Implement and train users with new products. Req. BS or equivalent in CS or CIS w/ nine months experience in job offered or software development. Must be proficient in Crystal Reports and OOA&D on Unix. $50,000/yr, 9-5, 40 hr/wk. Send resume to Softedge, Inc. at 4675 N. Shallowford Road, Suite 206, Atlanta, GA 30338.

Director of MIS & Technology wanted to perform enterprise-wide technology & info systms implmtn using ERP tools, plus utilize general bus knowl in various areas. Pos is loc in Houston, TX. Hrs: M-F 9-5. Must have BS (or equiv) in Comp Sci, Engg or related field +5 yrs exp in position offd, or in related occupation such as S/ware Consultant or Project Engr for info systms dvlpmt & implmtn. Apply to: Attn: Jackie Meredith-Batchelor, P.O. Box 8018, Philadelphia, PA 19101-8018.

SOFTWARE ENGINEER sought by battery testing mfg. co. in College Station, TX. Must have M.S. in Computer Science plus exp. Respond by resume to: Mr. J. Zhang, S/W. Multi Electrochem Test System (METS), 762 Peach Creek Cut Off Rd., College Station, TX 77845.

Software Engineers - Job#1) Lead a s/ware development grp-Intergrate ORACLE applications using web methods, XML, J2EE, CGI, PERL, Servlets, MO Series, Pivotal eRelationship CRM.
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Computer Programmer

Ouantum Performance Solutions seeks a Computer Programmer in our Bethlehem, PA loc. Position involves designing, developing, writing and implementing Web based applications. Involves use of technologies including ASP, Java Script, HTML, IIS, SOL Server and Admin, Active Reports, Crystal Reports/Web, Robo Help/Web, ChartFX Web Charting, and Web Server Admin. A qualified applicant must have Bachelor's in Comp. Sci or related field and 3 yrs of relevant experience. Applicants send résumé to HR, Ouantum Performance Solutions, 528 North New Street, Bethlehem, PA 18018.

F/T Project Implementation Specialist. Responsible for working with the customer to analyze and document data processing requirements and implement data programming for processing those requirements. Configures and installs applications using C/C++, COBOL, UNIX and Windows. Work background must have included exp. with the US telephone billing/mediation industry. Must have a Bachelor's degree in Computer Engineering or foreign degree equivalent. Must have two years exp. Salary: Competitive. Send resume to: R. Laudenschlager, Intec Telecom Systems, 5775 Peachtree Dunwoody Rd., Bldg. G, 3rd Fl., Atlanta, GA 30342.

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Programmer Analyst (multiple openings): Develop, create and modify computer systems and applications software and specialized utility programs. Analyze and design databases within an applications area. Analyze user needs and develop software solutions using Enterprise Resource Planning (ERP) and related software. Work involves extensive travel and frequent relocation. Must have one year of experience as a computer professional and one year of experience using 1 of A as follows: A) SAP, BAAN, Peoplesoft, JD Edwards, Oracle Applications/Financials, Manufacturing/HR. Will accept Associates Degree or foreign equivalent in one of several limited fields: computer science/applications, engineering, chemistry, mathematics, physics or a scientific or business related field. Salary is $67,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Manager, Armstrong County Team PA Careerlink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Job Order No.: WEB 237280

Senior Software Engineers (multiple openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation using relational data base management systems (RDBMS) Work involves extensive travel and frequent relocation. Must have six months of experience using 1 from Group A as follows: A) Informix, Oracle, FoxPro, Sybase, SOL Server, Progress. Master's degree or foreign equivalent. Will accept Bachelors degree or foreign equivalent with at least five years of progressive experience as a computer professional in lieu of Masters. Degree must be in one of several limited fields: Computer Science/Applications, Engineering., Chem., Math, Physics or a scientific or business related field. Salary is $80,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Fayette County Team PA CareerLink, Attn: JS Supervisor, 32 Iowa Street, Uniontown, PA 15401-3513. Please reference Job Order No.: WEB 237285.

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Please forward your resume and a cover letter, referencing source code: YNA032104A, to: Ms. Sharon Alexander, MBNA America Bank, N.A., 1100 N. King Street, Wilmington, DE 19884-2234. We're proud to be an Equal Employment Opportunity/voluntary Affirmative Action Employer.

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SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain complex information software systems for credit data processing in a client/server environment using object oriented programming. GUI tools, Oracle, MS Access, C, C++, VC++, Pro*C++, Visual Basic, TCP/IP socket, SMTP, CORBA, Shell Script, Perl, RogueWave Objects, PVCS, Workshop, Forte compiler, Makefile & Builds, Multithreading, Embedded SOL, OCI, Change Management tools, Purify, Java, HTML, XML, SOAP and CGI under UNIX, Windows NT/2000 and SUN Solaris operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered. Competitive salary offered. Send resume to: Katherine Crew, Equifax, Inc., 1525 Windward Concourse, Alpharetta, GA 30005 Attn: Job PG.

PROGRAMMER/ANALYST to analyze, design, develop, test and maintain web-based application software in a client/server environment using C, Java, RMI, Visual Basic, EJB, Servlets, HTML, XML, ABAP/4, Perl, Java Script, Oracle and WebLogic under SUN Solaris and Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job MC.

Programmer hr. per wk 40 9-6pm the position primarily involves the writing of programs to extend Proprietary applications. A typical project would involve 80% time spent programming and 2% time spent in the modification and integration of existing systems. high school education required and 1 year in professional programming.
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Computer Programmers should have bachelor's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+yrs relevant experience. Software Engineers should have master's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+ yrs relevant experience. DBAs, Project Leads should have bachelor's or master's degrees (or functional equivalents) and 2 + years relevant experience. Candidates must be willing to travel & relocate. Send resume to: Recruitment CWW, Infotech Consulting, Inc., 3461 Market St., Ste. 303, Camp Hill, PA 17011; Fax: 717-731-9857; Email: hsingh@icibsl.com. Visit our website at http://www.icibsl.com.

SOFTWARE ENGINEER to design, develop, implement and maintain application software in a client/server environment using Visual Basic, ASP, C/C++ and SOL Server on Windows NT platforms; Design and develop collaborative application architectures for Lotus Domino applications; Assist in the conversion of legacy systems to client/server system setup using Visual Basic. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Jack Patil, President, Americus Global Software, Inc., 1900 The Exchange, Bldg. 200, Atlanta, GA 30339; Attn: Job VP.

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COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at
www.computerworld.com

ABERDEEN GROUP INC. 43
AMERICAN BAR ASSOCIATION 1
AMERICAN EXPRESS CO 20
AMERICAN FEDERATION OF COMPUTER OPERATIONS MANAGEMENT 1,16
AMTRAK 22
AQUENT INC. 42
ATI TECHNOLOGIES INC. 47
AUTODESK INC 6
AUTOMATION CENTRE LLC. 43
BANK FOR INTERNATIONAL SETTLEMENTS 10
BANK OF AMERICA CORP 10
BELL CANADA INTERNATIONAL INC. 52
BEST WESTERN INTERNATIONAL INC 1
BMC SOFTWARE INC 60
BROCADE COMMUNICATIONS SYSTEMS INC 56
BTRADE INC 1
CALIFORNIA DEPARTMENT OF GENERAL SERVICES 14
CALIFORNIA HIGHWAY PATROL 26
CAPRION PHARMACEUTICALS INC 48
CAT TECHNOLOGY INC 24
CELENT COMMUNICATIONS LLC 14
CHESAPEAKE ENERGY CORP 52
COGNIGEN CORP 46
COMMERCE ONE INC 21
COMMVAULT SYSTEMS INC 52
COMPAQ COMPUTER CORP 6,56
COMPUTER ASSOCIATES INTERNATIONAL INC 6,24,26
COMPUTER SECURITY INSTITUTE 22
COVISINT LLC 1
CURRENT ANALYSIS INC 21
[illegible] BROWN ASSOCIATES INC 6
DANWARE DATA A/S 60
[illegible] INFORMATION SYSTEMS AGENCY 1
DELL COMPUTER CORP 56
DELTA AIR LINES INC. 28
DELTA TECHNOLOGY INC 26
DEUTSCHE BANK AG 6
DIRECT MARKETING ASSOCIATION INC. 1
DU PONT CO 43
EATON CORP 14
ELECTRONIC DATA SYSTEMS CORP 10,20,66
EMC CORP 10,52,56
FARPOINT GROUP 55
FBI 22
FEDERAL TRADE COMMISSION 1
FIRST INTERSTATE BANCSYSTEM INC. 10
FLEETBOSTON FINANCIAL CORP 14
FOOD MARKETING INSTITUTE 6
FOOTE PARTNERS LLC 33
FOSTER-MILLER INC. 54
FOUNDSTONE INC 60
FREDDIE MAC 44
FUJITSU LTD 56
GARTNER INC 1,7,6,12,14 43,52,54 56
GATEWAY COMPUTER ASSOCIATES INC 24
GENERAL MOTORS CORP 6
GIGA INFORMATION GROUP INC. 7,46
GOODYEAR TIRE & RUBBER CO 7
GORDON & GLICKSON LLC 6
HARRIS CORP 12
HEWLETT-PACKARD CO 6,21
HITACHI LTD 10,24
HURWITZ GROUP INC. 7,21
I2 TECHNOLOGIES INC. 24
IBM 1,21,22,24 52,55,56
IBM GLOBAL SERVICES 22
IDC 52 56
ILLINOIS POWER CO 1
ILLUMINATA INC. 48
IMANAGE INC 43
INFINISWITCH CORP. 56
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA 1
INTEL CORP 6,24,56
INTERGRAPH CORP 24
INTERNATIONAL ORACLE USERS GROUP 14
INTERNET SECURITY SYSTEMS INC. 12
ITA SOFTWARE INC. 20
ITT INDUSTRIES INC. 12
IVS ASSOCIATES INC. 6
JUPITER MEDIA METRIX INC. 29
LANE15 SOFTWARE INC. 56
LEGATO SYSTEMS INC. 52
LIFE TIME FITNESS INC. 42
LUCENT TECHNOLOGIES INC. 6
MARCOCCIO CONSULTING 28
MELLANOX TECHNOLOGIES INC. 56
MERIDIEN RESEARCH INC. 10
META GROUP INC. 1,14,16
MICROSOFT CORP 6,7,10,14,24,29,47,60
MIT 54
NASA 12,22
NATIONAL ASSOCIATION OF CONVENIENCE STORES 6
NATIONAL CITY CORP 26,40
NATIONAL HIGH PERFORMANCE COMPUTING AND COMMUNICATIONS COUNCIL 22
NATIONAL INFRASTRUCTURE PROTECTION CENTER 22
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY 12
NATIONAL RESEARCH COUNCIL 6
NATIONWIDE FINANCIAL SERVICES INC 1
NCCI HOLDINGS INC. 1,16
NETWORK SYSTEMS & SERVICES 12
NEW YORK STOCK EXCHANGE 14
NOVELL INC. 21
NTBUGTRAQ 7
NVIDIA CORP 47
O'HAGAN SMITH & AMUNDSEN LLC. 36
OBJECT MANAGEMENT GROUP INC 46
OMEGABAND INC 56
OPENTRAVEL ALLIANCE INC 1
OPPENHEIMERFUNDS DISTRIBUTOR INC 22
ORACLE CORP 14
ORBITZ LLC. 20
ORGANIZATION FOR THE ADVANCEMENT OF STRUCTURED INFORMATION STANDARDS 1
OSHKOSH B'GOSH INC. 7
PACIFIC BUSINESS GROUP ON HEALTH 8
PACIFICORP 36
PEOPLESOFT INC. 21,43
PEREGRINE SYSTEMS INC. 26
PHOCUSWRIGHT INC. 20
PHOENIX HOME LIFE MUTUAL INSURANCE CO. 7
PLACEWARE INC. 12
PLATFORM COMPUTING INC. 46
PLATINUM TECHNOLOGY INTERNATIONAL INC. 24
PM SOLUTIONS 36,43
PRATT & WHITNEY 46
PRIVACY COUNCIL INC. 1
PROVIDENCE HEALTH SYSTEM 6
QLOGIC CORP 56
QUICK & REILLY INC. 21
RELIANT ENERGY INC. 26
RESEARCH IN MOTION LTD 55
ROYAL BANK OF CANADA 1,16
SABRE HOLDINGS CORP 20
SAGEZA GROUP INC. 6
SANS INSTITUTE 12
SAP AG 6,21,43
SIEBEL SYSTEMS INC. 21
SLM FINANCIAL CORP 44
STERLING SOFTWARE INC. 24
STONEBRANCH INC. 16
SUN MICROSYSTEMS INC. 1,6,10,21,24,47,46
SWISS 10
SWISSAIR GROUP 10
SYMANTEC CORP 12
SYSINTERNALS LLC 60
TAMIYASU, SMITH, HORN AND BRAUN ACCOUNTANCY CORP 7
TERRADON COMMUNICATIONS GROUP LLC 12
THE BANK OF TOKYO-MITSUBISHI LTD. 14
THE BUSINESS ROUNDTABLE 6
THE CENTER FOR DEMOCRACY AND TECHNOLOGY 1
THE DESTINY GROUP 44
THE HERITAGE FOUNDATION 22
THE JOHNS HOPKINS UNIVERSITY 14
THE LEAPFROG GROUP 6
THE OPEN GROUP 46
THE REYNOLDS AND REYNOLDS CO. 36
THE UNIVERSITY OF CHICAGO GRADUATE SCHOOL OF BUSINESS 6
TRAVEL IMPRESSIONS LTD. 20
TUFTS ASSOCIATED HEALTH PLANS INC. 6
U.S. ARMY 12,54
U.S. ARMY RESEARCH OFFICE 54
U.S. DEPARTMENT OF JUSTICE 24
U.S. DEPARTMENT OF LABOR 22
U.S. MARINE CORPS 66
U.S. NAVY 66
U.S. POSTAL SERVICE 6
UNITED TECHNOLOGIES CORP 46
UNIVERSITY OF BALTIMORE SCHOOL OF LAW 6
UNIVERSITY OF CALIFORNIA, BERKELEY 6
UNIVERSITY OF WASHINGTON 56
USA EDUCATION INC. 44
VALASSIS COMMUNICATIONS INC. 36
VALENCE TECHNOLOGY INC. 55
VANASSE HANGEN BRUSTLIN INC. 43
VERITAS SOFTWARE CORP 52
VIEO INC. 56
VISTEON CORP 6
VOLTAIRE INC. 56
WORLD WIDE TECHNOLOGY INC. 24
WORLD WIDE WEB CONSORTIUM 10
XYBERNAUT CORP 54
ZURICH AMERICAN INSURANCE CO. 36
ZURICH FINANCIAL SERVICES 36

ADVERTISERS INDEX

American Power Conversion www.apcc.com 888-289-APCC	28/29*
Ascent Solutions Inc. www.asizip.com	20
Compaq Computer Corp. www.compaq.com	50-51
Computer Associates www.ca.com	13, 22, 30-31
Dell www.dell.com	58-59*
Finisar www.gofinisar.com	21
Hewlett-Packard www.hp.com	17-19
IBM CrossWorlds www.ibm.com	68
IBM Storage www.ibm.com	34-35
Innovative Technology Awards www.computerworld.com	57
Intel www.intel.com	11
InterSystems Corp. www.intersystems.com	46
Microsoft Agility www.microsoft.com	15
Microsoft Project 2000 www microsoft.com	26-27
Microsoft Visual Studio www microsoft.com	38-39
Oracle Corp. www oracle.com	9
Princeton Softech www.storesmarter.com	23
Rational Software www.rational.com	25
Red Hat www redhat com	67
SAP www sap.com	32
SAS www.sas.com	45
Storage Networking World Online www.snwonline.com	53
Sun Microsystems www sun.com	2-4

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Continued from page 1

ebXML Patent

"You don't assume that after you've created a significant body of work together that someone's going to stand up and say, 'Remember that part we submitted to the group? Well, we have a patent on it, and now you may be subject to licensing and royalty fees,'" said Mike Kistner, CIO at Best Western International Inc. in Phoenix. Kistner is also president of the Open Travel Alliance in Alexandria, Va., which plans to standardize on the ebXML specifications.

Contribution Concerns

"Hopefully, we can continue using what we thought was an open standard," Kistner added. He said he's "very concerned" about IBM's patent stance and intimated that it could affect the travel alliance's plans to use the standard if the matter isn't resolved.

Ralph Berwanger, ambassador for standards at Irving, Texas-based e-commerce network provider bTrade Inc., has been involved in ebXML development since its inception. Berwanger said all participants were told explicitly that submissions should be made without encumbrance.

"We demanded that contributions would be just that — contributions," he said.

An IBM spokeswoman last week said the company has decided to offer TPAML "at zero cost" to OASIS licensees. She declined to explain IBM's rationale for placing a claim on the patents.

However, in an April 17 posting on *www.ebxml.org*, Martin Sachs, an IBM executive who chaired the ebXML trading partners project team, wrote, "There was an unfortunate snafu earlier somewhere inside IBM. The disclosure [about IBM's patent claim] was to be made to ebXML in mid-2000 in conjunction with the start-up of the [trading partner] team, but someone dropped the ball."

Evolution of an 'Open' Standard

9/15/99 The United Nations Centre for Trade Facilitation and Electronic Business and the Organization for the Advancement of Structured Information Standards form a group to develop the technical framework for a new Internet-based trading standard called ebXML.

9/5/00 OASIS announces plans to standardize electronic contracts and trading partnerships using IBM-submitted XML format.

4/27/01 RosettaNet says it will support the ebXML messaging spec.

5/14/01 Version 1.0 of ebXML is ratified in Vienna.

8/1/01 The Open Travel Alliance announces plans to build a travel industry e-commerce framework around ebXML.

3/28/02 IBM informs OASIS that it holds patent rights on its trading partner submissions.

While that appears to quell immediate royalty payment concerns, Jamie Clark, chairman of the Chicago-based American Bar Association's Business Law Subcommittee on Electronic Commerce and a member of the ebXML joint coordinating committee, noted that IBM could still pull its submission at a later date.

He also expressed concern that competitors could be limited in how they implement the standard in their products. "The question becomes, How do you feel building around a standard that's been in some way branded?" said Clark.

Simon Phipps, chief technology evangelist at Sun Microsystems Inc., called the move "the renaissance of the old IBM." He said actions like this "raise questions about the entire standards process."

Phipps argued that companies like IBM with large patent portfolios could hijack anything claiming to be an open standard by waiting for adoption and then asserting their rights. "It lets you have a degree of control over your competitors and how they compete with you," he said.

Jeff Cripps, director of industry relations at Southfield, Mich.-based auto industry exchange Covisint LLC, said IBM's claim to some ebXML specifications wouldn't halt his company's plan to use related, but unpatented, ebXML messaging protocols. But IBM's move "doesn't fall into the spirit of open," he said. ◗

Quick Link For more information on the creation of TPAML, visit our Web site:
www.computerworld.com/q?a1870
For the potential effect on Web services:
www.computerworld.com/q?29134

Continued from page 1

Senate

something industry groups have generally supported. But there's a big stick tied to that carrot. Under this proposal, individuals would gain the right to sue, or bring "private right of action," over privacy breaches, opening the door to class-action lawsuits. That means a leak of customer data could lead to a major lawsuit. It's a scary prospect for some.

"That will impede the development and evolution of the Web. It will stop it in its tracks," warned Kirk Hearth, chief privacy officer at Columbus, Ohio-based Nationwide Financial Services Inc. "Basically, you won't go into the business unless you can develop an infrastructure that's perfect, or as perfect as you can make it."

For a company, a minor security breach "can mushroom into a class-action suit and bring it to its knees," said Hearth.

Hollings has scheduled an April 25 hearing on the bill, which is expected to move quickly to the full Senate for a vote. It has a key Republican backer in Sen. Conrad Burns of Montana.

Many industry groups, such as the Direct Marketing Association Inc. in New York and the Arlington, Va.-based Information Technology Association of America (ITAA), have urged Congress to let businesses regulate themselves.

Business Challenges

The privacy rights sought in the bill are modeled after the Federal Trade Commission's fair information practices of notice, consent, access, security and choice. But those rights present potential challenges for business.

For instance, the access provision would require companies to develop the means to make personally identifiable information available for the consumer's review. The bill also calls for "robust notice."

"How do you [provide robust notice] on a wireless device with a really small screen?" asked Mark Uncapher, vice president and counsel at the ITAA. On a Web site, a notice might have "some level of intrusiveness," such as a drop-down box.

The bill would apply only to e-commerce and not to off-line data collection. Brick-and-mortar store retailers aren't subject to similar rules. "It makes e-commerce far more legally intensive, subject to a lot more lawsuits," said Uncapher.

But Larry Ponemon, CEO of Privacy Council Inc. in Richardson, Texas, said that while the bill could lead to "tobacco-like class-action litigation," it also has consumer benefits, such as greater accountability. It would force firms "to make some tough decisions about the nature, type and extent" of data they want to collect and use, he said.

A national privacy standard, affecting all industries, will give companies "a better road map for compliance," said Ponemon.

Ari Schwartz, an analyst at the Washington-based Center for Democracy and Technology, said the privacy group generally supports the bill. "We think it moves in exactly the right direction," he said. "It sets real baseline standards." ◗

Pricing Privacy

Sen. Hollings' online privacy legislation could have a major impact on companies:

CHOICE: Consumers could opt to have sensitive financial and medical information collected. They would have to opt out to stop collection of nonsensitive information.

NOTICE: Bill calls for "robust notice" when data is collected.

ACCESS: Businesses could charge people up to $3 to see their data.

SECURITY: Measure requires reasonable procedures.

ENFORCEMENT: If sensitive information is released, individuals could sue and recover up to $5,000. If the feds or states win civil action on nonsensitive data, injured parties could collect up to $200.

Quick Link For more stories about online privacy issues, visit our special coverage page:
www.computerworld.com/q?s1200

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FRANK HAYES/FRANKLY SPEAKING

The Power of 'How'

IF YOU WANT TO UNDERSTAND a statement that doesn't make sense, sometimes you have to know a little more about why someone would make it. Three weeks ago, I wrote about an admiral who told a public forum that the U.S. Navy wants to preserve its 30,000-odd legacy systems as it connects them all to a Navywide network. That's impossible, I said. A laudable goal, a good political position — but not a practical possibility.

Now I think I finally understand why he'd make such a nonsensical statement. It wasn't a goal, or political positioning. It wasn't even a pile of public-relations double talk.

It was a "How."

As in "How we're going to keep costs down on this project."

The project (and it turns out that it *is* a project, not just a general goal) is called Navy-Marine Corps Intranet (NMCI). NMCI is the biggest outsourcing deal in history, worth $6.9 billion over five years. The prime contractor is EDS. The technical goal is to consolidate some 300 existing Navy and Marine Corps networks and make everything on them work together. The business goal is for the Navy to learn how to buy IT services, not just build for itself.

At least, those were the goals in October 2000, when the contract was awarded. Since then, the economy has cratered, the federal budget surplus has disappeared and political support for history's biggest IT deal is wavering.

Money is tight now, which means the admirals in charge of NMCI have to commit to cutting costs. And they have to make that commitment in a way that's clear and understandable to congressmen and budgeteers and taxpayers.

So the admirals came up with a clean, clear How. How will we cut project costs? By keeping what we've got instead of replacing it with shiny new everything.

Congressmen and budgeteers and taxpayers understand that idea. Fixing your old car costs less than buying a new one. Having the furnace repaired is cheaper than replacing it. So keeping the old systems instead of ripping them out and replacing them makes sense to people who aren't elbow-deep in the project's details.

Of course, the reality is more complicated. Of the tens of thousands of legacy Navy and Marine Corps systems that NMCI developers have evaluated, 70% to 90% *won't* survive the project. Some are no longer useful. Others will be cheaper to replace than to retrofit for NMCI. Many duplicate functions that NMCI will consolidate.

But that leaves thousands of legacy systems that *could* be ripped out and replaced, but won't be. And for those thousands of systems, the admirals' explanation of how they'll keep costs down is still true.

Just as important, it *rings* true — in a way that a vague statement like "We will evaluate all legacy systems and retain the ones that are appropriate to adapt to NMCI" just doesn't, no matter how much more technically accurate and logically complete it may be.

Every IT project needs Hows — explanations for users and managers that get straight to *how* a new application or system or Web services deal will make them more productive or cut costs or provide room for expansion or improve a business process in a way they'll immediately grasp.

A good How is clear, specific and resonates with users and managers. Not "better performance," but "when you hit Enter you won't have to wait." Not "process improvement," but "you can get sales figures daily, not weekly." Not "reduced costs," but "we can keep less inventory in the warehouse." That's the stuff users and managers understand.

No, it's not a complete picture. Maybe it sounds dumbed-down or even wrong. But when you're talking to users — or the people who fund the project — sometimes the most important thing is just to make sense. ◗

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

WORKING ON the requirements for a new version of an order processing application, developer pilot fish gets a very specific request from a user: "On the accounts receivable screen, I want the system to tell me when I have checks that I haven't deposited."

JUST AFTER a user moves her PC to a new cubicle, she calls the help desk to report that her monitor no longer works. Are all the cables and cords connected? pilot fish asks. Sure, user says. When fish arrives at the cube, it takes only seconds to spot the problem: No power cord on the monitor. I'll be right back with a replacement cord, he tells user. "No need," says user. "There was a spare one left over after the PC was set up."

HELP DESK pilot fish for a small pharmacy chain overhears his co-worker taking a call. Turns out it's the company president's daughter with a PC problem. Co-worker makes the expected noises – "OK, uh-huh, I understand" – and finally asks, "When you lift up your laptop, does water still pour out of it?"

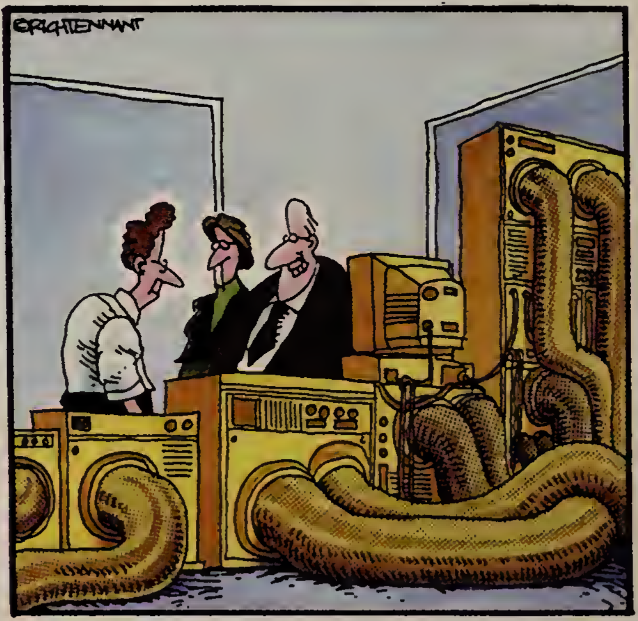
NEW IT pilot fish for a county sheriff's office isn't happy with delays in the countywide e-mail system. After several tries, he finally gets the county e-mail admin on the phone. "It's taking e-mail sent from a building across the street three hours to reach our office," fish tells him. Replies admin: "That's not a problem for you, is it?"

CLIENT WHO'S worried about usability has a question for Web site designer pilot fish: "This is our biggest concern with our Web site: How do we know if our site users are having a problem, are not aware of it and aren't submitting a complaint?"

TROUBLE TICKET escalates through multiple support levels to engineering pilot fish, who finally thinks to ask, "When, exactly, did your communications problem start?" User answers, "Just after someone from Loss Prevention went up on the roof with an ax to knock the ice off the satellite dish."

Don't ax, just tell: **sharky@computerworld.com**. You score a sharp Shark shirt if your true tale of IT life sees print – or if it shows up in the daily feed at *computerworld.com/sharky*.

The 5th Wave



"... and Bobby here found a way to extend our data transmission an additional 3000 meters using coax cable. How'd you do that, Bobby – repeaters?"

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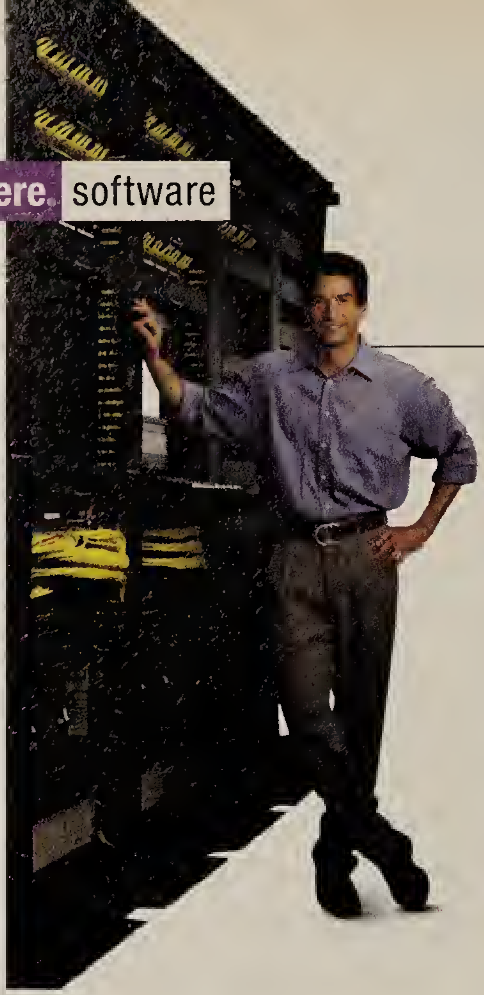

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